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The Great Ship São Bento: remains from a mid-sixteenth century Portuguese wreck on the Pondoland coast

by

Chris Auret[1] **and Tim Maggs**[2]

SYNOPSIS

This paper describes material recovered from a Portuguese wreck of about 1550. Remains include cannon, jewellery, ceramics and other items. The chronological evidence and the survivors' account of the shipwreck indicate that it was the wreck of the São Bento in 1554.

INTRODUCTION

Msikaba is a small resort at the mouth of the Msikaba River on the Pondoland coast of Transkei (31°19′S : 29°58′E). The mouth opens into a small bay (Fig. 2) and some 400 m to the south is a low rocky islet largely submerged at high water but accessible, dry-shod, at spring low.

For many years the area has been known for the carnelian beads and sherds of Ming porcelain which wash ashore on or near the island. Speculation about the identity of a possible wreck at the site has at times become confused with the famous Grosvenor wreck of 1782, which took place some 8 km to the south-west. Confirmation of a wreck was forthcoming only in 1968 when G. N. Harris discovered a number of bronze cannon while diving off the seaward side of the island.

This discovery led to the establishment of an amateur salvage and research group in Kokstad. The cannon and other items were gradually recovered despite the fact that rough seas and murky water prevented diving on an average of four out of five days.

Research on identifying and dating the finds, particularly the cannon, was undertaken by members of the group, mainly by J. Godlonton and one of the present writers (C. A.). From 1977 the Archaeology Department of the Natal Museum became interested in early shipwrecks because the survivors' accounts contain the earliest descriptions of the south-eastern seaboard and its inhabitants. The emphasis in this work has been on dating the recovered material in order to identify the ships. Previous attempts by historians (eg. Wilson 1959, Derricourt 1976, Huth—no date) to fix the position of these wrecks have relied entirely on the survivors' accounts. However, the resulting controversies have shown that these accounts alone are inadequate in most cases. Recent work is showing that a combination of marine archaeology and careful study of the historical sources can fix wreck localities and identify some of the ships with a high degree of probability.

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[1] 132 Hope Street, Kokstad, 4700 Natal.
[2] Natal Museum, Pietermaritzburg, 3201 Natal.

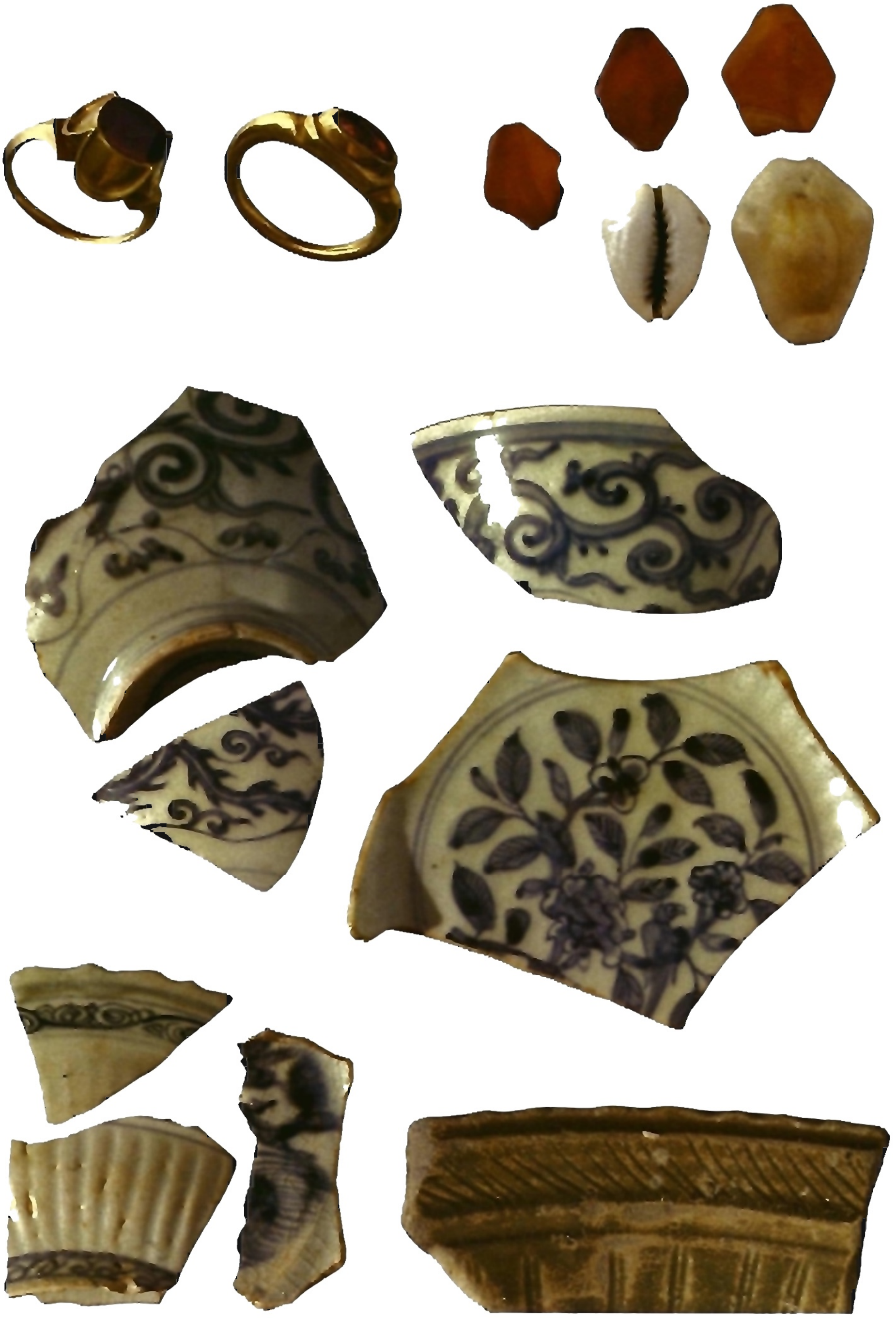


Fig. 1. Remains from the São Bento wreck. Gold and ruby rings, carnelian beads and money cowries. Upper four sherds true porcelain showing colour variation, three lower left sherds coarse porcelain, lower right glazed earthenware (not to scale).

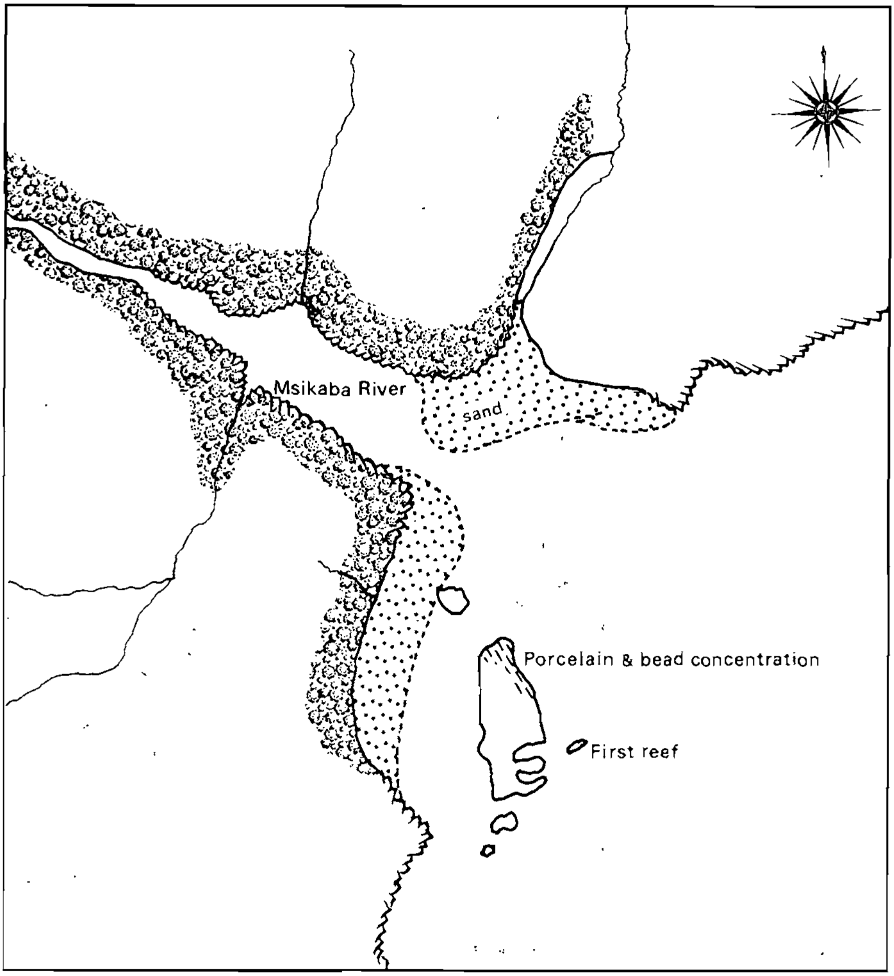


Fig. 2. Sketch-map of Msikaba Bay, showing island and first reef on which most of the cannon were found.

THE FINDS

The cannon, ammunition and a few other items were recovered from the seabed, just off the island. These belonged to members of the salvage group who have donated the eight largest cannon to the Transkei Government (now currently on loan to the Natal Museum). Two of the small falconets, owned by members of the group, are on display at the Local History Museum, Durban and the Natal Museum. Almost all the smaller items including ceramics, carnelian beads and jewellery were recovered on the shore-line. They belong to a large number of people, some of whom have donated their collections to museums.

The cannon

Since 1969 18 cannon have been recovered, all made of bronze. They can be classified into four groups:

Type 1. Small breech-loading cannon—(10).
Type 2. Large breech-loading cannon—(5).
Type 3. Medium-sized muzzle-loading cannon—(2).
Type 4. Large muzzle-loading cannon—(1).

The breech-loading cannon, though of two distinct sizes, are otherwise similar and are described together.

Types 1 and 2—breech-loaders (Fig. 3)

Described by N. V. dos Santos of the Museu de Marinha, Lisbon, and others, as falconets, they differ markedly from the conventional concept of a cannon in having a primitive breech directly to the rear of the first reinforce ring. In the breech there are three rectangular slots while the cascabel has a circular hole through the centre. This was designed to take a simple form of butt used for training and elevating the weapon. The cannon itself was not mounted on a carriage but, by means of a wishbone structure, directly onto the gunwales, lookout platforms and other vantage points of the ship.

The breeches were desgined to take a separately charged chamber which may best be described as looking like a large beer tankard. This was inserted into the breech and locked into position by means of a tapered metal bar driven through the two rear slots. The purpose of the centre slot is unclear, though several possibilities have been suggested.

In describing a falconet with identical markings, recovered from the Goodwin Sands in 1775, King (1779) suggests that the slot took a flange in the base of the chamber to further wedge it in position. Blackmore (pers. comm.) suggests it was for drainage and for inserting a rod to free the chamber after firing, while R. Daenhardt (pers. comm.) considers that it was to take a semicircular iron bar which was pierced in several places and fastened by pins at different angles to elevate the cannon.

The falconet was primarily designed as a relatively quick-firing weapon for anti-personnel purposes rather than for ship sinking. With each gunner having a supply of up to 20 charged and loaded chambers to hand they were able to maintain about six times the rate of fire of the muzzle loaders (Daenhardt pers. comm., Dos Santos pers. comm.).

To date no chambers or butts have been found, but sediments in the cascabels and breeches of some of the pieces suggest that these were made of iron. Various references to these cannon support this suggestion (Blackmore pers. comm., King 1779).

Type 3—medium-sized muzzle-loaders (Fig. 3)

These muzzle-loading cannon are identical, with a length of 236 cm and a bore of 17 cm. They differ from later designs in having four lifting rings, two on either side of the trunnions rather than only two (known as dolphins) at the point of balance near the trunnions. They also have only a single reinforce stretching from

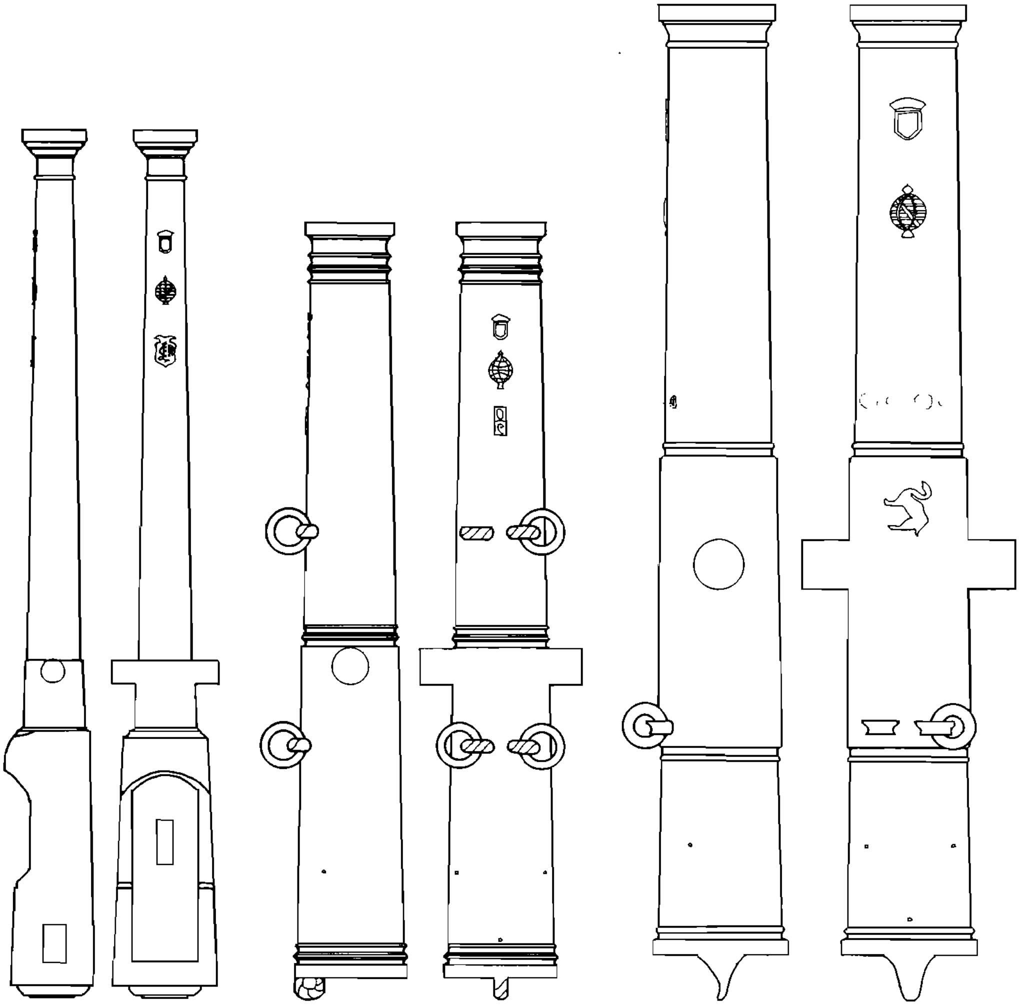


Fig. 3. Cannon. From left: Type 2—length 264 cm, bore 7,5 cm; Type 3—length 236 cm, bore 17 cm; Type 4—length 301 cm, bore 23 cm.

the base to just in front of the trunnions. The base is perfectly flat and, instead of a cascabel, one finds a loop, displaying, like the lugs which hold the lifting rings, a most distinctive 'twisted rope' pattern (Fig. 3). A similar pattern can be seen on a Portuguese piece dated to 1594 in the Tower of London (Blackmore pers. comm.).

Type 4—large muzzle-loader (Fig. 3)

This cannon differs from better-known designs in two respects. Like Type 3 it also appears to have had four lifting rings rather than two dolphins. However, unlike any other design known to the present writers, the second reinforce, stretching from behind the rear lifting rings to beyond the trunnions, is thicker than the first reinforce and the chase.

The cascabel has been damaged but indicates a more conventional shape.

When the barrel was cleaned out in the course of conservation work at the Natal Museum, a number of stones and a variety of organic material were recovered. These are described below.

Identification marks on cannon

The smaller falconets show considerable abrasion and, though some possess remnants of markings, these could not be identified with certainty. The three larger types are in better condition, probably because they are heavier and therefore more resistant to movement caused by wave action. The lack of sand at the site is another factor which must have contributed to reduced abrasion damage.

Marks on several of the larger cannon were fairly clear (Figs 4–7). By comparing these with what is still visible on the smaller falconets we were able to identify three distinct groups of markings. Those on the Type 1 and 2 falconets were identical, being a crest nearest the muzzle followed by an armillary sphere and then a shield containing a monogram of the letters CFRO (Fig. 5). Type 3 cannon carry a similar crest near the muzzle followed by an armillary sphere and then a rectangle containing the letters 'OC' (Fig. 6). The Type 4 cannon carries only two visible markings on the chase: a crest similar to those on the other types followed by an armillary sphere. What may well prove to be a further identification mark appears on the second reinforce (Fig. 7).

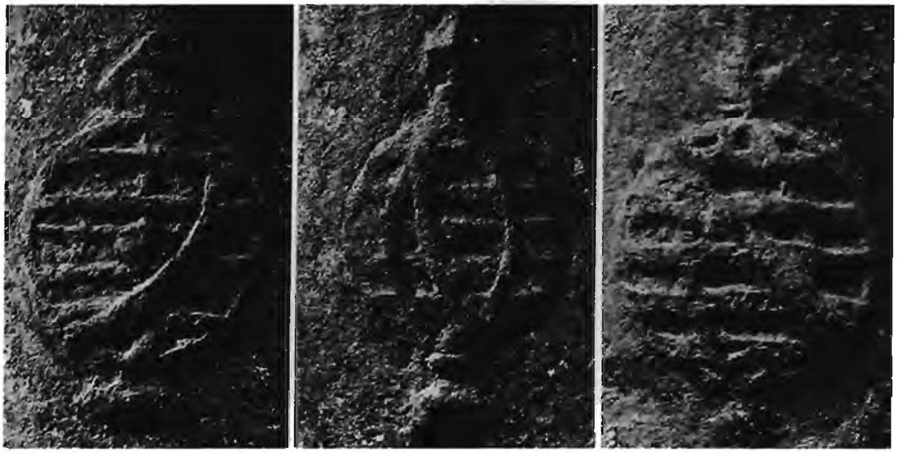


Fig. 4. Three versions of the armillary sphere. From left: Type 2, Type 3 and Type 4 cannon.

The crests

While little internal detail has yet been identified the crests are remarkably similar in shape. Consideration of the other markings shows them undoubtedly to be representations of the Royal Portuguese Coat of Arms.

The armillary sphere (Fig. 4)

The armillary sphere was adopted, as his 'mark' by King Manuel of Portugal (1495–1521). According to Dos Santos (pers. comm.) and Do Valle (1963), it was also used to a limited extent by his successors, John III (1521–1557) and Sebastian (1557–1578), although in general the latter two did not use it in conjunction with the Royal Coat of Arms.

It can be seen that each group of markings contains a different representation of the sphere. This can be ascribed to the fact that only Type 1 and 2 cannon had the same manufacturer. Photographs of cannon No. B9 in the Naval Museum, Lisbon, bearing the 'OC' cypher described below, show an armillary sphere identical to that on the Type 3 cannon.

The CFRO monogram (Fig. 5)

The origin of this mark is more obscure. King (1779) recorded it from a bronze breech-loading cannon recovered from the English Channel in 1775. On the chase of this piece can be seen the identical group of marks to those of the Msikaba falconets.

According to Dos Santos (pers. comm.), it was long considered to be the mark of a Portuguese gun founder who lived during the reigns of John III, Sebastian and Phillip. However, General Pereira do Valle (1963) refutes this, considering it to be one of a foreign founder who made cannon for Portugal and other countries. He bases his conclusion on the fact that the Royal Portuguese Coat of Arms is incorrectly represented. The Museu Militar, Lisbon, has two cannon (Nos B6 & C3) carrying this mark. One has the date 1550 carved on it. One of the muzzle-loading cannon from the Santiago, wrecked in 1585, also carries this monogram (Natal Museum collection).

The OC monogram (Fig. 6)

Marks of Portuguese cannon founders show this as quite clearly belonging to one Sebastio Cobris, a Portuguese who cast cannon in Portugal from 1514 and for about 50 years (Do Valle 1963).

The possible Type 4 mark (Fig. 7)

The Type 4 cannon shows, in addition to the crest and armillary sphere, a mark on the second reinforce. As a mark it is unusual because, according to Dos Santos (pers. comm.), the museums in Portugal have no record of it. However, he has been able to identify the Type 4 cannon quite clearly as belonging to a group known as 'camels', which are a sixteenth-century Portuguese type. The name is possibly derived from the humped shape of these cannon. The mark itself looks like a rather heraldic camel with two humps.

The chapelet holes

As can be seen from Figure 3, both types of muzzle-loaders contain square holes forward of the base ring. Until the early years of the eighteenth-century cannon were commonly cast on a core: to form the bore, a rod was placed centrally in the hollow clay gun mould and after the molten bronze had been

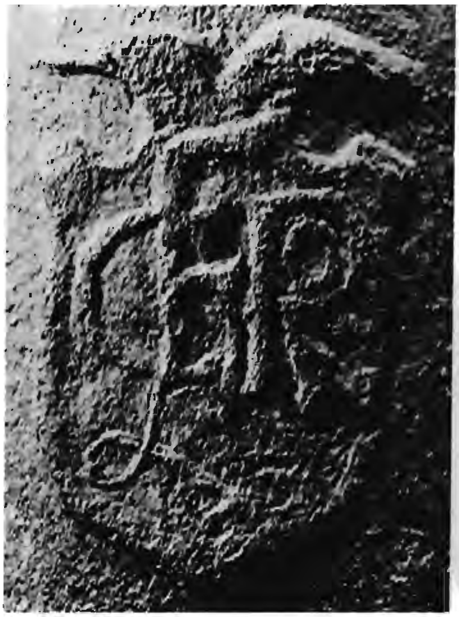


Fig. 5. The CFRO monogram from Type 1 and 2 cannon (falconets).

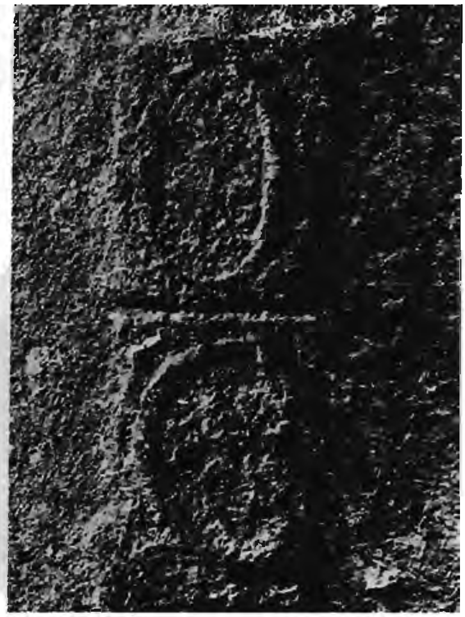


Fig. 6. The OC monogram from Type 3 cannon (medium-sized muzzle-loaders).

poured and had cooled, this rod was removed, leaving a central passage which was then cleaned up by means of revolving boring tools to form the final bore. The all-important central rod was secured in the breech end of the gun mould by means of an 'armature' made of iron and called a 'crown-iron' or 'chapelet'. This had either 3 or 4 arms which were used to fix the rod firmly in the clay mould. The ends of these arms would reach nearly to the outer surface of the mould. When the molten bronze filled the mould, the rod could be removed, while the armature remained forever embedded in the breech end of the cannon. Prolonged immersion of a bronze cannon in sea water would corrode the iron away leaving as in this case, holes where the chapelet was (A. N. Kennard pers. comm.).

From the markings and other characteristics of the cannon it is clear that the wreck was a Portuguese ship of around the mid-sixteenth century.

The cannon balls

The cannon balls are of interest in that all are of iron, covered with a layer of lead. They are of two distinct sizes, about 3,5 cm and about 5 cm in diameter, and fit the two types of falconet.

All the balls found have either a slot or a square hole through the lead covering. This has led the present writers to assume that all were originally part of 'chain' shot or 'bar' shot where two iron spheres were joined together by a length of chain or a bar, the spheres then being covered with lead.

No shot to fit either of the larger types of muzzle-loading cannon has been found. If they had been made entirely of iron they might have completely corroded away. Another possibility is put forward by A. N. Kennard (pers.

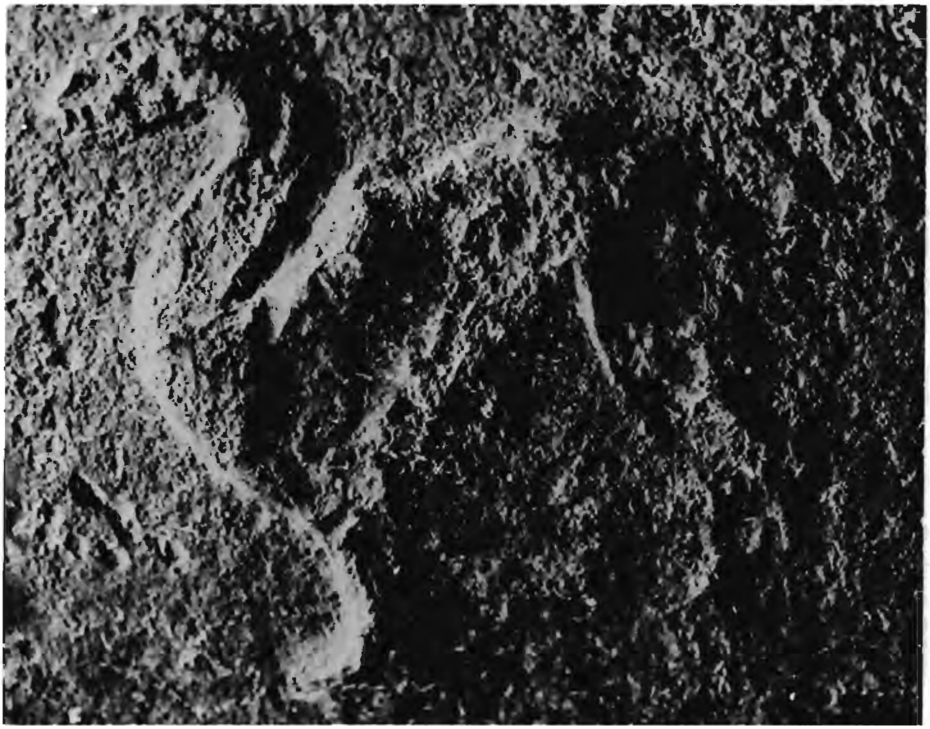


Fig. 7. The 'camel' mark on the Type 4 cannon.

comm.), formerly of the Tower of London, who considers that the Type 4 cannon probably fired stone shot. Although nothing clearly identifiable as such has been recovered, several irregular rounded stones were recovered during the cleaning of its barrel. These stones could, however, be of local origin or have been part of the ship's ballast. Since both money cowries and peppercorns were also recovered from the barrel it is probable that the cannon was in the hold at the time of the wreck.

The gold rings

Fourteen rings of two distinct types have, to our knowledge, been found at Msikaba. One is of a relatively simple design (Fig. 1, second from left) and contains a cabochon ruby. The other design, represented by 13 examples, is more elaborate, with a U-shaped panel or 'quatrefoil bezel' on each of the four sides of the setting (Fig. 1, top left; Fig. 9). The first example contains a table-cut ruby, the others either lack their stones (Godfrey 1969) or retain table-cut diamonds.

The more complex examples have been identified by A. Somers-Cox of the Victoria and Albert Museum as being typical early to mid-sixteenth century Renaissance jewellery; the simpler type could be considerably earlier, even perhaps fourteenth century. The more elaborate type with its distinctive setting must indeed have been popular among the wealthy and aristocracy of Europe around the middle of the sixteenth century for it appears in several portraits of the period. Examples include the portrait of Lady Jane Grey about 1545 attributed to Master John, Holbein portraits of the English Court around 1533–1543, including his cartoon of Henry VIII, Dr Léon Braunsberg by Cranach (lived 1472–1553) and Steven van Herwijck by Mor (lived 1519–1576). This type of ring does not appear in later portraits and therefore seems to have gone out of fashion by the last quarter of the sixteenth century.

The rubies in both rings have been identified by their zircon impurities as originating in Sri Lanka. India was virtually the only source of diamonds in this period and therefore they too are almost certainly of eastern origin. Furthermore, the standardised pattern of the more complex rings and their relative frequency of occurrence at Msikaba, four centuries after the wreck, indicate that they must have been part of the cargo of the vessel rather than the personal effects of individual crew members or passengers. It appears, therefore, that jewellers in India were already making rings designed specifically for export to the European market.

The ear-rings

Two hemispherical pieces worked in gold have been identified by Skelton, of the Victoria and Albert Museum, as *Jhumka*—the lower half of a type of Indian filagree ear-ring. The larger one is set with small cabochon rubies, many of poor quality (Fig. 8); the smaller is made up of twisted gold threads (Fig. 8). There is little evidence for the dating of such jewellery, but it could be from the sixteenth century, although the style is generally considered to be eighteenth century.

The intaglio

This item, carved from carnelian, was found as long ago as 1934 and has subsequently been set into a ring (Fig. 9). The Victoria and Albert Museum consider that no specific identification of the portrait is possible, discounting a previous, though tentative, identification as the bust of the astronomer Herschel (1792–1871). The intaglio as a form of ornament reached its height of popularity during the Renaissance.

The gold coin

As stated previously (Auret 1977), the coin has provided the one incontrovertible date for the Msikaba wreck. It is a gold *cruzado* showing the Royal Portuguese Coat of Arms surrounded by the legend I0A 111 POR ET AL R (John III King of Portugal and the Algarve) with, on the reverse, a cross and the words *In hoc signo vincit*. John III reigned from 1521 to 1557, so the coin shows that the wreck could not be earlier than 1521. It is the only coin known from the site and was found on the island wedged between two rocks near low water.

The beads

One of the commonest finds are carnelian beads. These were made in large numbers at Cambay, India, and were traded by the Portuguese and other European maritime powers, mainly to West Africa. The great majority from Msikaba are 'lozenge' shaped (Fig. 1), but examples of a short cylindrical shape, 12 mm in diameter and 7 mm long, a faceted biconical shape and an elongated hexagonal shape, have also been found.

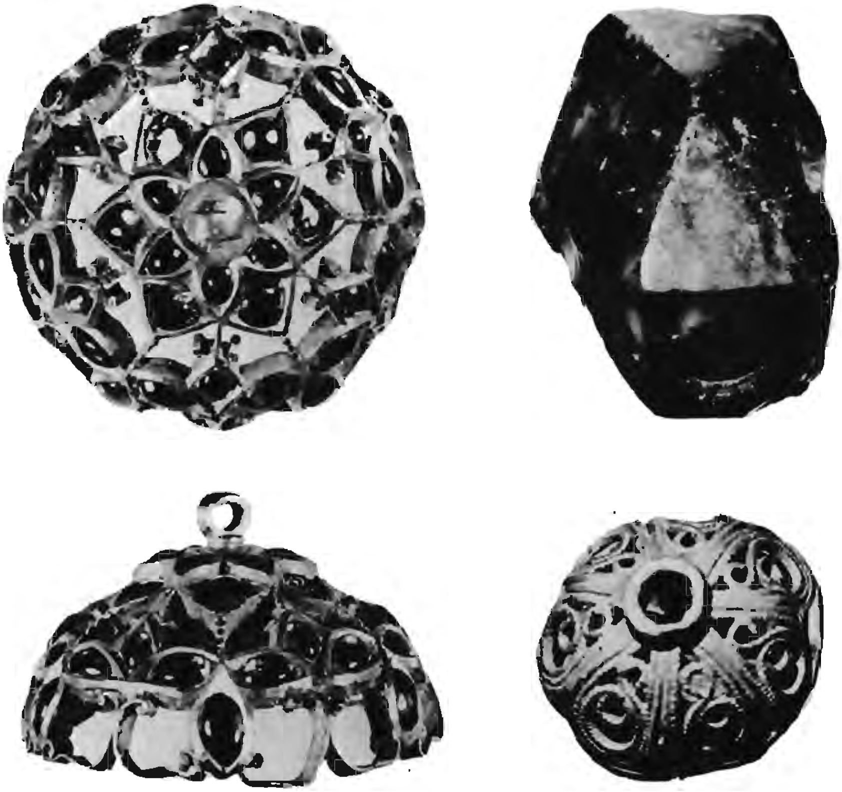


Fig. 8. Left: top and side view of a *Jhumka*, the lower half of a gold filagree ear-ring, set with small cabochon rubies, diameter 25 mm. Top right: small faceted garnet bead, length 7 mm. Bottom right: smaller *Jhumka* of filagree gold, diameter about 15 mm.

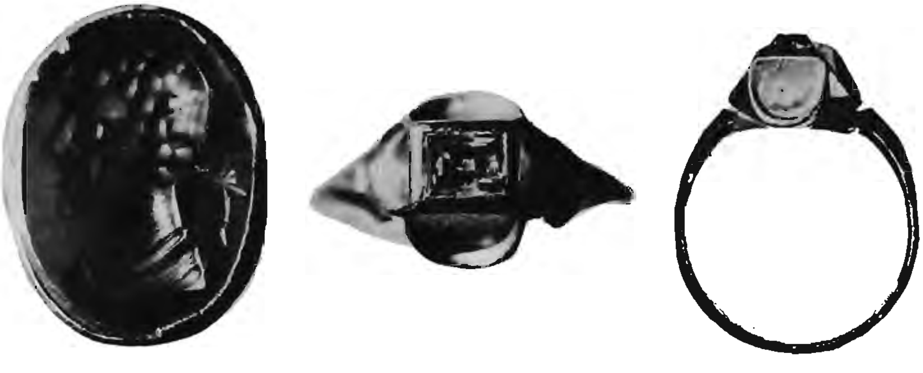


Fig. 9. Intaglio bust, length 10 mm, and diamond ring (top and side view).

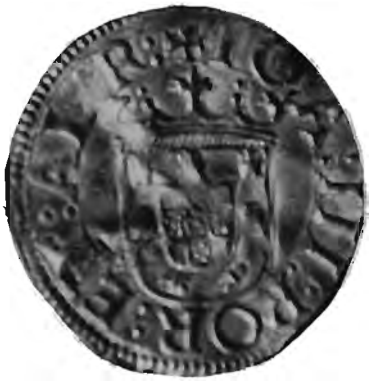


Fig. 10. Gold coin of John III (1521–1557).

The only other bead is a small faceted garnet 7 mm long, and 4 mm wide but broken at one end (Fig. 8).

The cowries

During the cleaning of the Type 4 barrel a large number of money cowries (*Cypraea moneta*), weighing some 18,7 kg, came to light. They were so closely packed into the breech end of the barrel that they had clearly been placed there for storage. As mentioned above, this indicates that this large cannon must have been in the hold at the time of the wreck.

The money cowrie occurs in more tropical parts of the Indian Ocean and was exported, particularly from the Maldive Islands, to West Africa where it was already serving as currency centuries before the Portuguese maritime expansion. In 1510 at Timbuktu it was recorded as having the relatively high value of 2 600 for a Roman ounce of gold, but soon thereafter its value depreciated when the Portuguese began importing money cowries to the West African coast by sea (Mauny 1961). Clearly the Msikaba cowries, like the carnelian beads, were intended for Portugal's trade in West Africa.

Other finds from the cannon barrel

The physical protection offered by the barrel and perhaps the preservative chemical action of the bronze has enabled organic material to survive here, though none has been recovered elsewhere on the site. Woody remains include a piece of oak and a fragment of coconut shell. Coconuts washed ashore from the São Bento wreck were eaten by the survivors (Theal 1898). Only 50 grams of peppercorns, which must have been a most important part of the cargo, survive. Two pieces of what looks like fine cane have yet to be identified. Three pieces of rib from an animal about the size of a sheep, and two other bone fragments show extensive gnawing by a small rodent. No doubt ships of this time supported large rodent populations and evidently an individual made its home in the barrel. The bones and peppercorns would seem to be confirmation that this cannon was in the hold at the time of the wreck.

The porcelain

The porcelain has been dated to about the period 1530–1560 by J. Ayers of the Victoria and Albert Museum. Chinese export porcelain is less well known from this period than from later years and the present authors therefore considered it worthwhile to illustrate a fairly full range of the material available to them from a number of museum and private collections. Although it is broken up, a shipwreck collection such as this has the advantages that all pieces are contemporary and relatively precisely dateable, compared for example with material from most archaeological sites on land or most pieces of museum collections.

The quantity of porcelain recovered in the past few decades, over four centuries since the wreck, shows that it must have been a significant part of the ship's cargo. The collection is relatively uniform, the common bowls and dishes appearing in large numbers, which is again indicative of a cargo rather than odd pieces belonging to people on the ship. Export porcelain was presumably loaded in India within a few years of its manufacture. It has been argued below that the wreck is that of the São Bento which left India in February 1554 and sank in April. This would date the porcelain from about 1550 to not later than 1553.

The reign marks support this dating, though they do not provide such precision. The most common emperor marks are those of Xuande (1425–1435) (eg. Fig. 15,14) though the porcelain is not in the style of that period. There are also several marks of Zhengde (1506–1521) (Fig. 29,4), but only one of Jiajing (1522–1566) (Fig. 13,3) during whose reign the porcelain would have been made. The use of earlier reign marks, particularly those of Xuande, by Chinese potters is well known, but the single Jiajing mark places the collection after 1522. Another common inscription, 'long life, honour and riches', usually in the shape of a 'cash' coin, is characteristically sixteenth century (Fig. 18,5).

The cobalt pigment varies in colour (Fig. 1), but is usually quite strong. It is covered by a transparent glaze that fits the body well with the exception of some of the fluted dishes (Fig. 17), where pinholing and even slight crawling may occur.

Hemispherical bowls of various sizes are common (Figs 11–14). On their insides they have a central circular motif, usually floral (Fig. 12,3–8) and a border just below the rim, usually of diamond diaper also called trellis (Fig. 11,5 & 17) or classical scroll (Fig. 11,16). Their outsides have a variety of motifs including floral scrolls, landscape and vegetation (eg. Fig. 11,6–10, 13–14) with some examples of the Taoist trigram and crane motif (Fig. 11,11; Fig. 13,6), waves and rocks (Fig. 13,5) and others. Both the Taoist influence and the diamond diaper border are very characteristic of porcelain from the reign of Jiajing.

Another common type of small bowl is proportionally wider than the last, and has an everted rim (Fig. 15,1–2). Inside, most of them have a central circular motif of a dragon, with the very characteristic diamond diaper border below the rim (Fig. 15,11–13, 16–17). Outside, most have a dragon and floral scroll motif (Fig. 15,3–10), though examples of other motifs do occur (Fig. 16).

A very common item is the small fluted dish with foliate rim. It was evidently press-moulded, though some of the fluting may have been cut. In most cases the central motif is what we have called 'parrot in fruit tree', the latter being perhaps a pomegranate (Fig. 17,4; Fig. 18,1–2), though other motifs do occur (Fig.

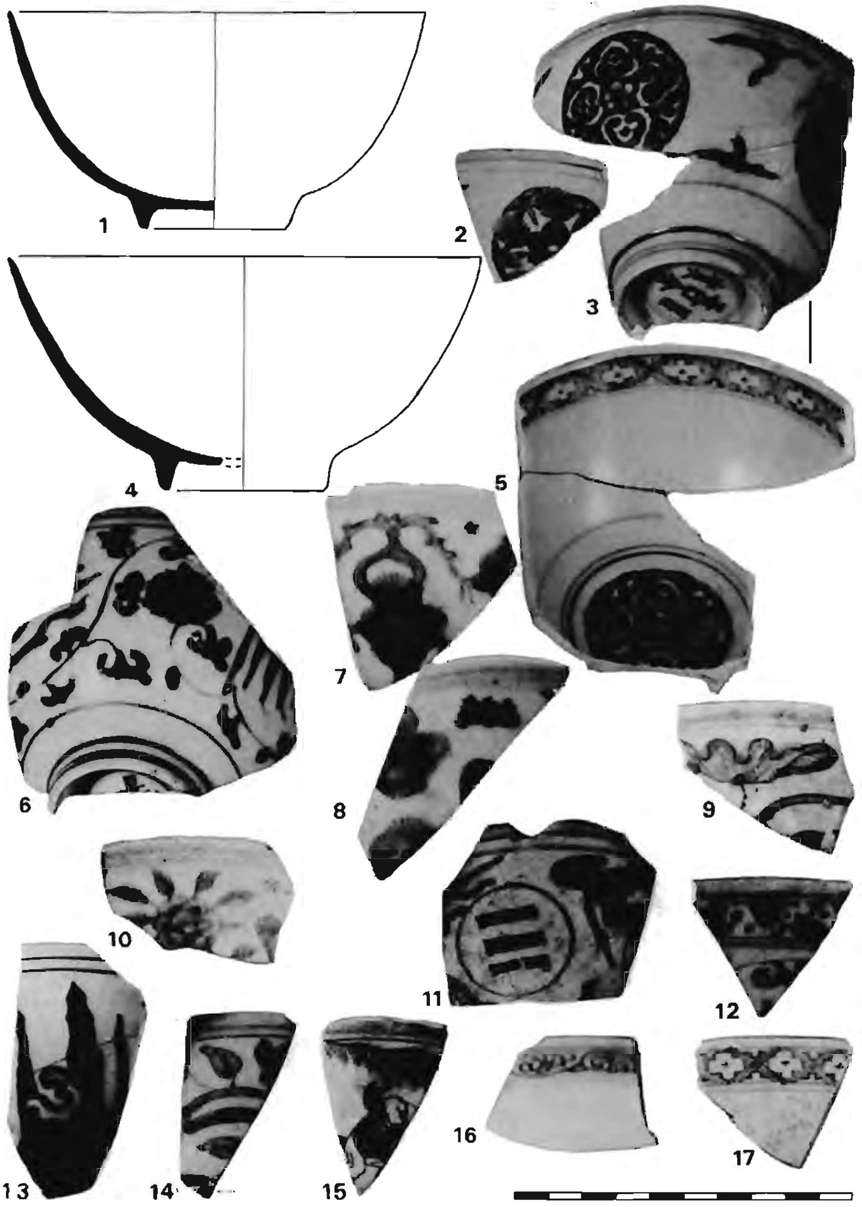


Fig. 11. Smaller hemispherical porcelain bowls. Photographs show the range of decoration on both insides and outsides. 3 & 5 are of the same bowl (inscription 'long life, riches and honour' in form of 'cash' coin on foot). 6. Phoenix and chrysanthemum scroll. 11. Trigram and crane motif. 15. Human figure. Diamond diaper border inside the rim is particularly common (5 & 17) but wave and classical scroll border (12 & 16) do occur.

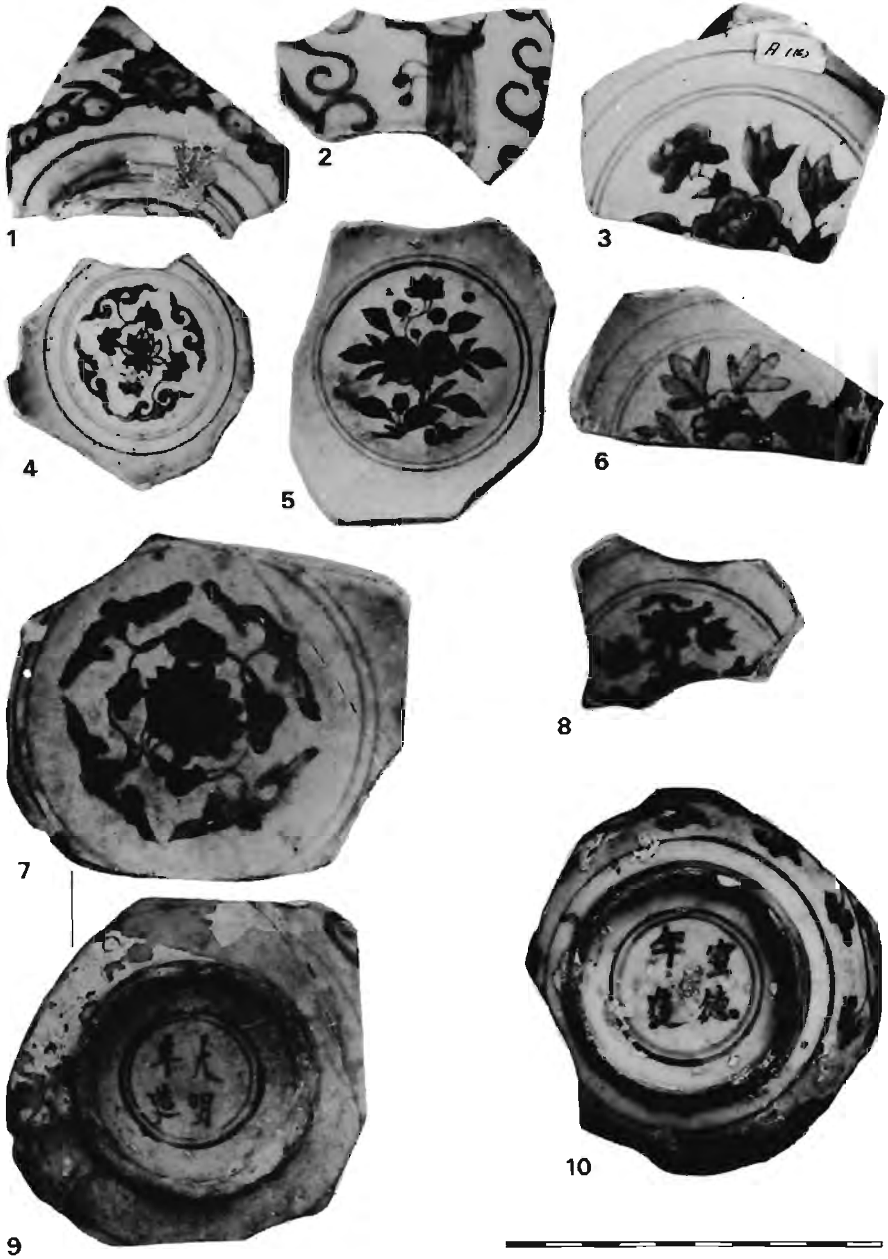


Fig. 12. Smaller hemispherical porcelain bowls. 1 & 2. Outsides. 4 & 7. Lotus scroll inside centres. 3, 5, 6 & 8. Other floral motifs on insides. 9. Foot inscription reads 'made in the Great Ming period'. 10. Reads 'made in the Xuande period'.

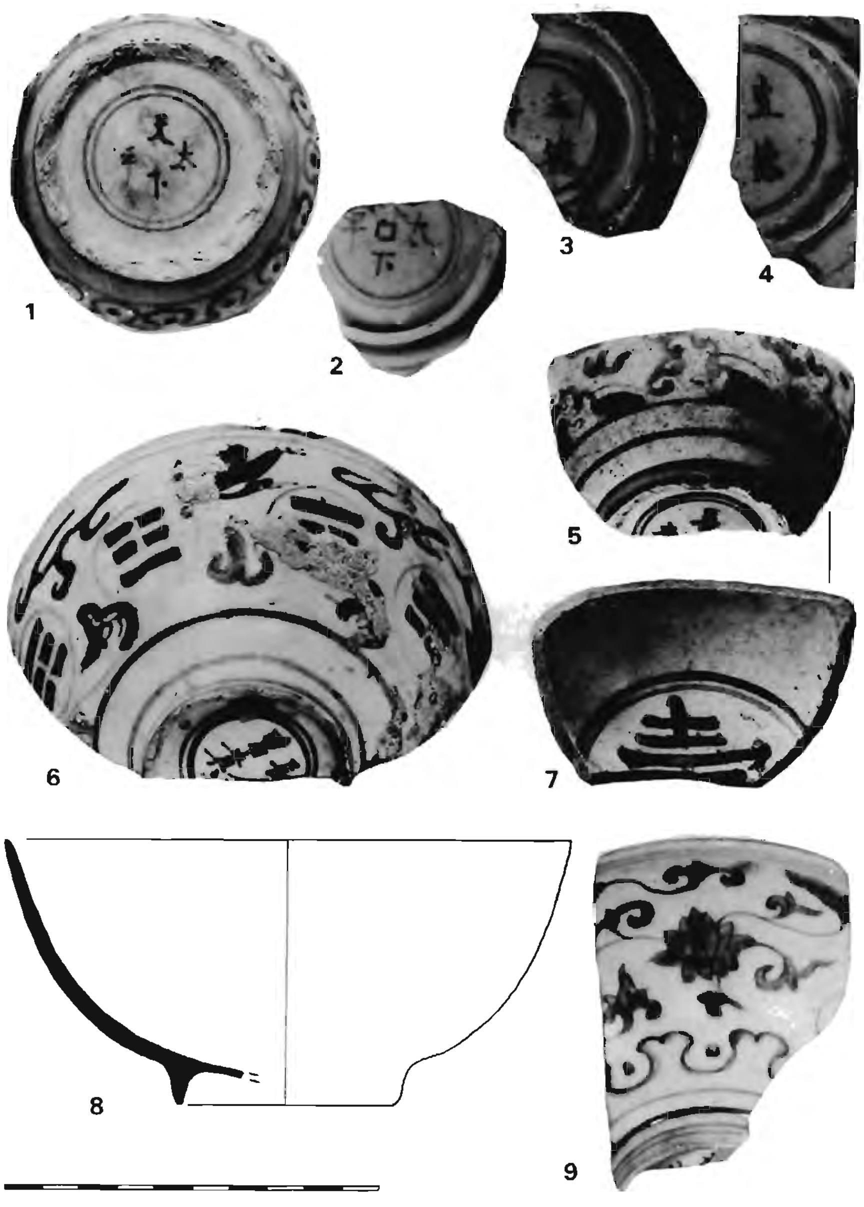


Fig. 13. Slightly larger hemispherical porcelain bowls. Inscriptions on 1 & 2 not identified. 3. 'Zhengde'. 4. 'Xuande'. 5. Rock and wave motif. 6. Trigram and crane motif with inscription 'riches, honour and enduring spring' on foot. 9. Lotus scroll.

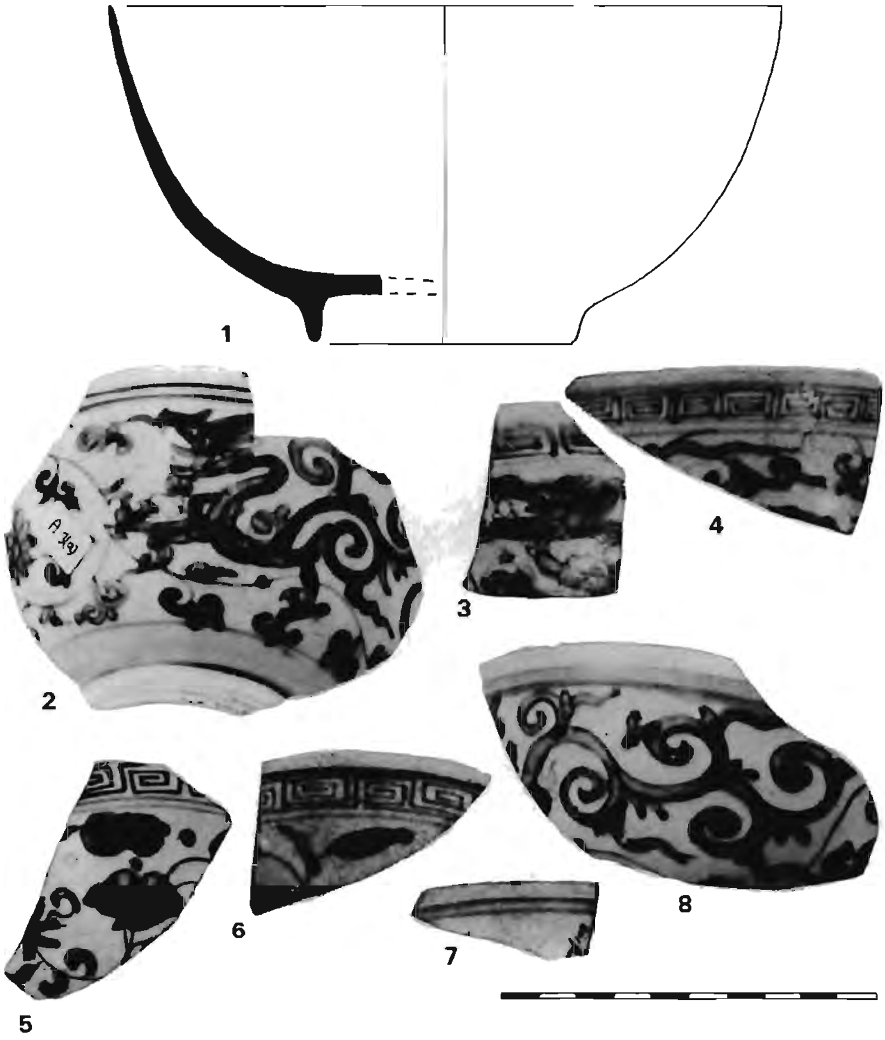


Fig. 14. Larger hemispherical porcelain bowls. 2, 3, 4 & 8. Dragon and lotus scroll motif. 5 & 6. Floral scrolls. 3–6. Thundercloud border, insides are plain except for a double line (7).

18,3–4, 6–7). Inside the rim there is a border, usually of diamond diaper (Fig. 18,9) or what appears to be a stylised fruit (? cherry) motif (Fig. 18,8 & 10). For similar examples see Pope (1981, plates 76 & 90), the latter being very similar to our dishes. Borders on the outside of the rim include waves and the fungus and classical scrolls (Fig. 17,2–3, 5–6). A complete example of these dishes has been recovered from the Islamic cemetery of Vohemar in northern Madagascar (Vernier & Millot 1971, plates 88 & 89). Some dishes of similar shape lack underglaze blue decoration and instead have a non-transparent white glaze (Fig. 19,4–7), while others are decorated but lack the fluting (Fig. 19,8–13).

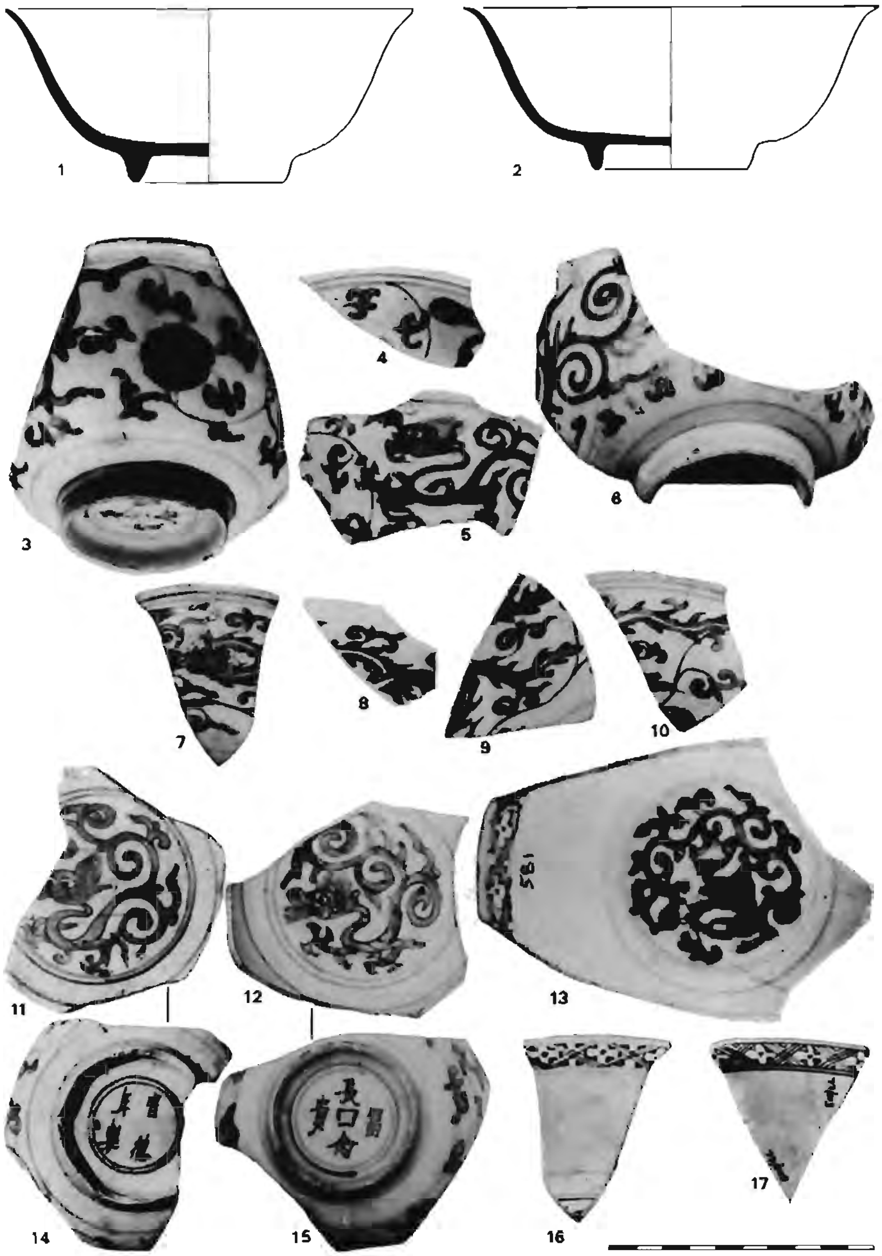


Fig. 15. Small porcelain bowls with everted rims. Most have dragon and floral scroll on outsides (3–10), dragon centre (11–13) and diamond diaper border (13, 16 & 17). Inscriptions are 'long life, riches and honour' (3 & 15), 'made in the Xuande period' (14).

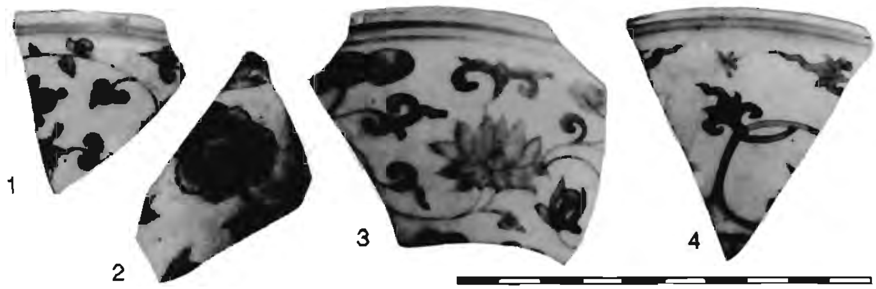


Fig. 16. Small porcelain bowls with everted rims. Lotus (3) and other floral scrolls.

There are a few larger dishes with foliate rims, perhaps used for serving food. Their outsides are decorated with waves, rocks, dragons and fire forms under a classical scroll border, while inside the Taoist trigrams occur with clouds and decorative borders (Fig. 21).

Fragments from a variety of other porcelain items are in some cases large enough for their shapes to be reconstructed, at least in part. Of interest is an item that we have called a candlestick although the candle holder itself is broken (Fig. 22,1–3). Vase fragments include a possible *mei-p'ing* neck (Fig. 22,4–5), the neck of a bottle-shaped vase (Fig. 22,8–9) and hexagonal forms (Fig. 22,6–7, 10–12; Fig. 24,5). Square boxes (Fig. 23,1–7) are more common than round ones (Fig. 23,8–14) or ones with bracket-shaped sides (Fig. 24,1–4). The boxes have lids and stand on feet which take the form of heads of lions or dogs of *Fo*. These were evidently cast separately from the boxes and applied after bevels had been cut at the appropriate positions around the box. A few fragments of delicately spouted ewers were also recovered (Fig. 24,8 & 9).

Sherds bearing decoration not adequately covered by the previous illustrations are shown in Figs 25–30.

The 'coarse porcelain'

This ware is considered by J. Ayers of the Victoria and Albert Museum to be a provincial Chinese product probably from southern China. It is not translucent and not true porcelain but, according to C. Woodward, a porcellanous stoneware. It has a white to buff coloured, slightly porous body with underglaze decoration varying from an inky blue to black. The glaze is semi-transparent and a pale grey-green to brown in colour (Fig. 1). Many pieces show running crazing and pinholing. Being softer than the true porcelain, it tends to be broken into smaller pieces and often shows chemical weathering.

The most common vessel shape is the fluted dish with foliate rim (Figs 31 & 32). This was probably influenced by the porcelain examples, since similar scroll and diamond diaper borders were used (Fig. 31,2–4; Fig. 32,4 & 6), though another common border consists of a row of nesting arcs, sometimes interrupted at intervals with a crosshatched motif (Fig. 32,3 & 7; Fig. 33,2).

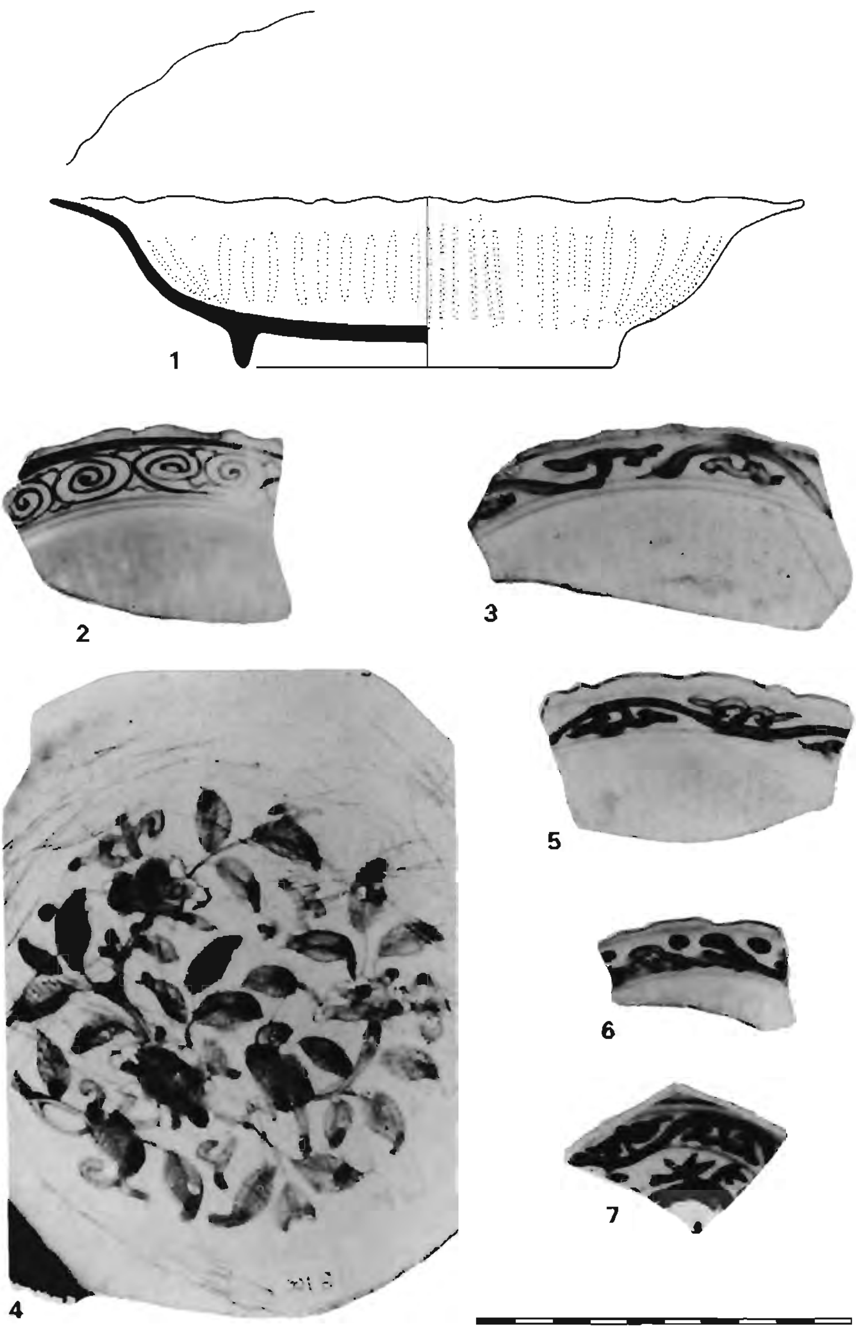


Fig. 17. Small porcelain fluted dishes with foliate rims. 2, 3, 5 & 6. Borders on outside of rim. 3 & 5. Sacred fungus scroll. 6. Wave border. 4. 'Parrot in fruit tree' motif inside centre of dish. 7. Fungus scroll bordering inside centre.

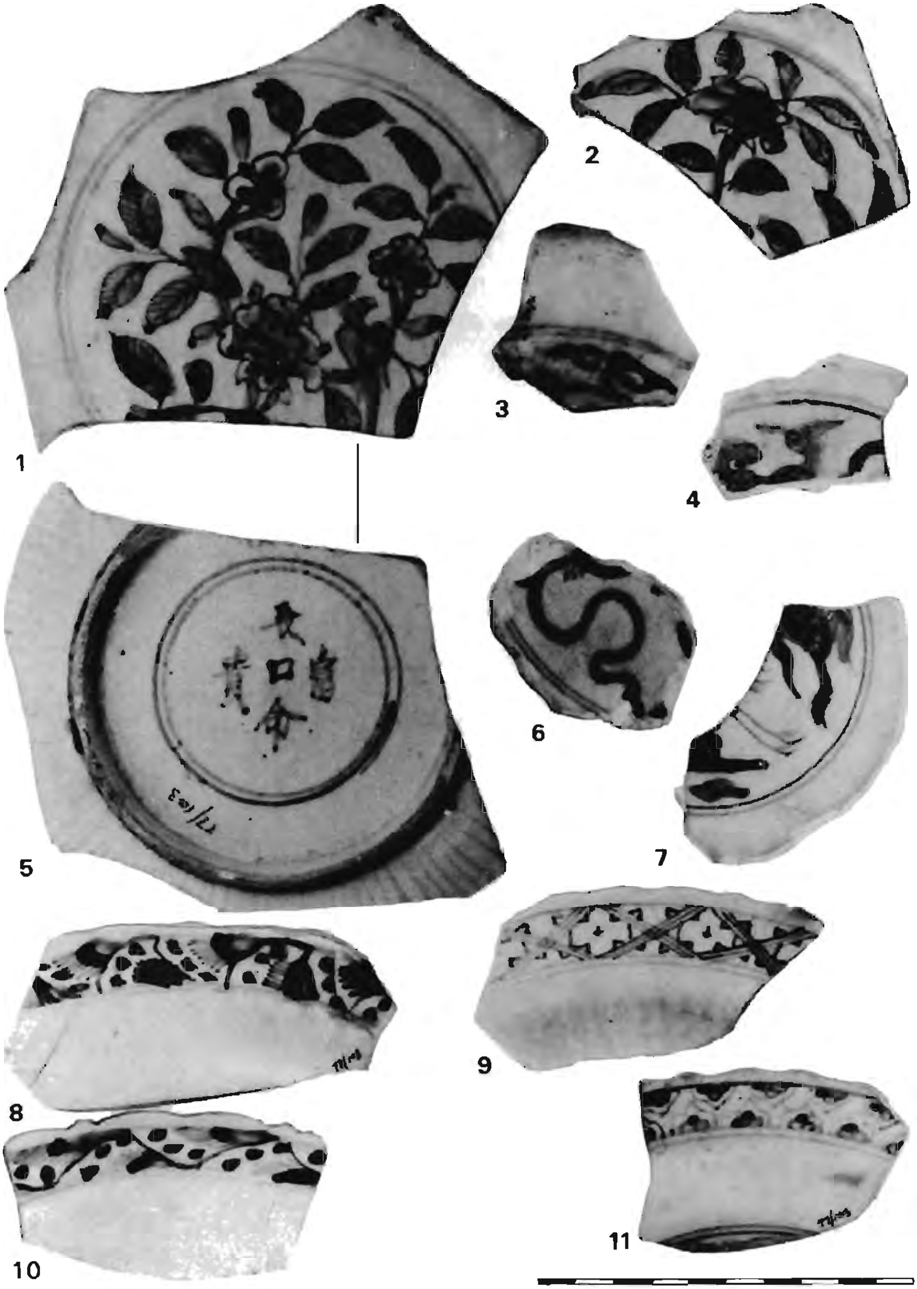


Fig. 18. Small porcelain fluted dishes with foliate rims. 1 & 2. 'Parrot in fruit tree' motif. 3, 4, 6 & 7. Various less common motifs in centres of dishes. 5. Underside of 1 with inscription 'long life, riches and honour'. 8–11. Various borders on inside of rim.

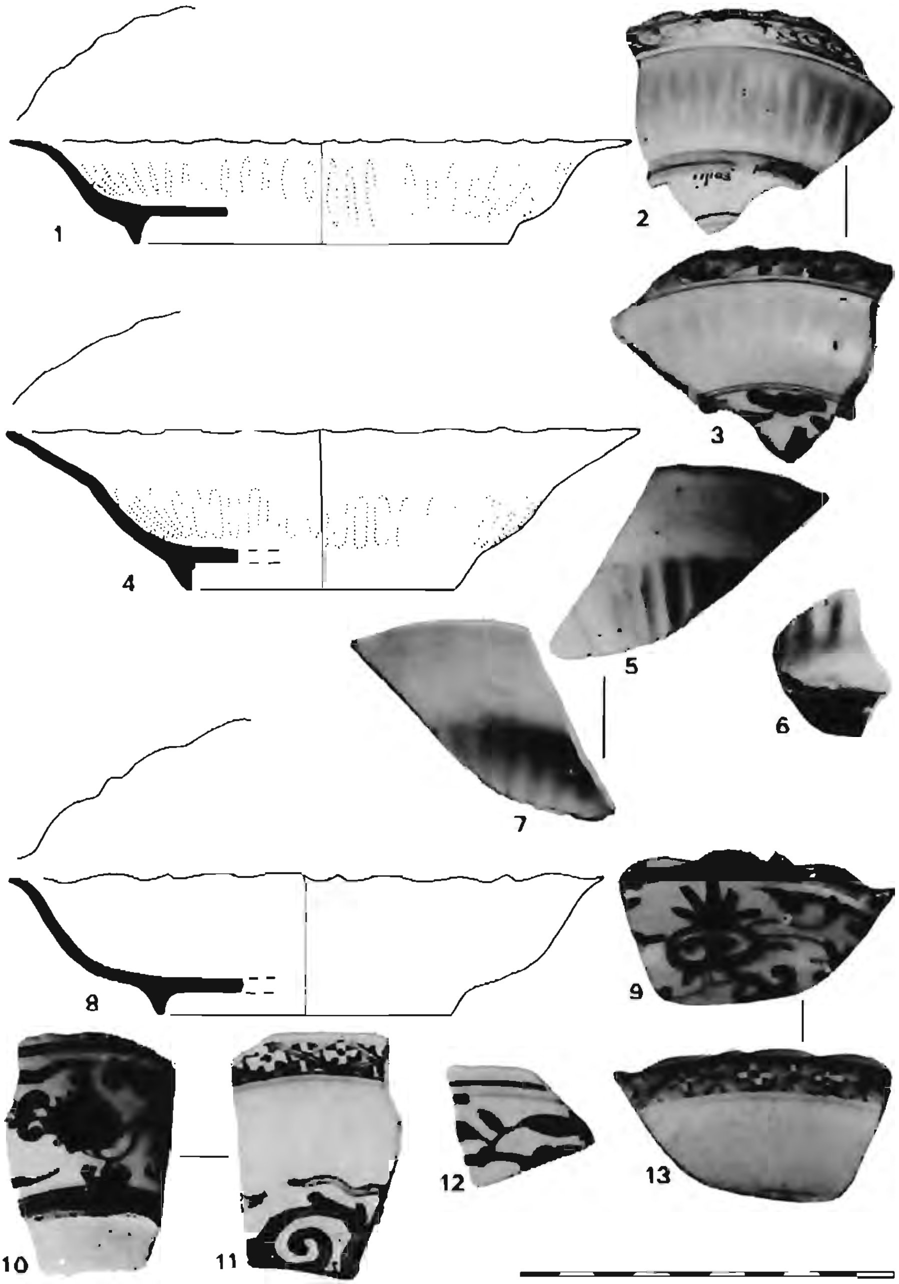


Fig. 19. 1. Smaller porcelain fluted dish with foliate rim, showing outside (2) and inside (3). 4. Similar dish but glazed in a non-transparent white glaze and lacking cobalt decoration, showing outside (5 & 6) and inside (7). 8. Small porcelain dish with foliate rim (not fluted), with various motifs on outside (9, 10 & 12) and inside (11 & 13).

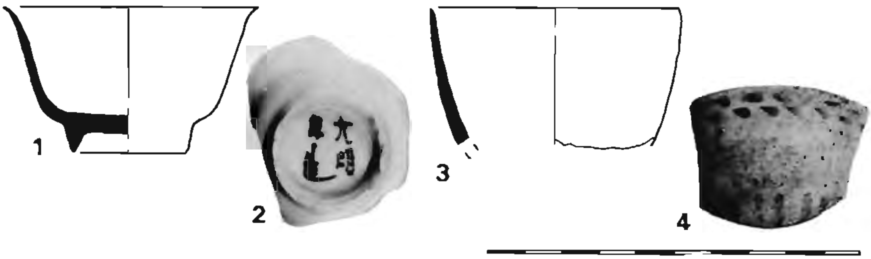


Fig. 20. 1 & 2. Small drinking bowl in white glazed porcelain; inscription reads 'made in the Great Ming period'. 3 & 4. Small porcelain bowl with simple blue decoration.

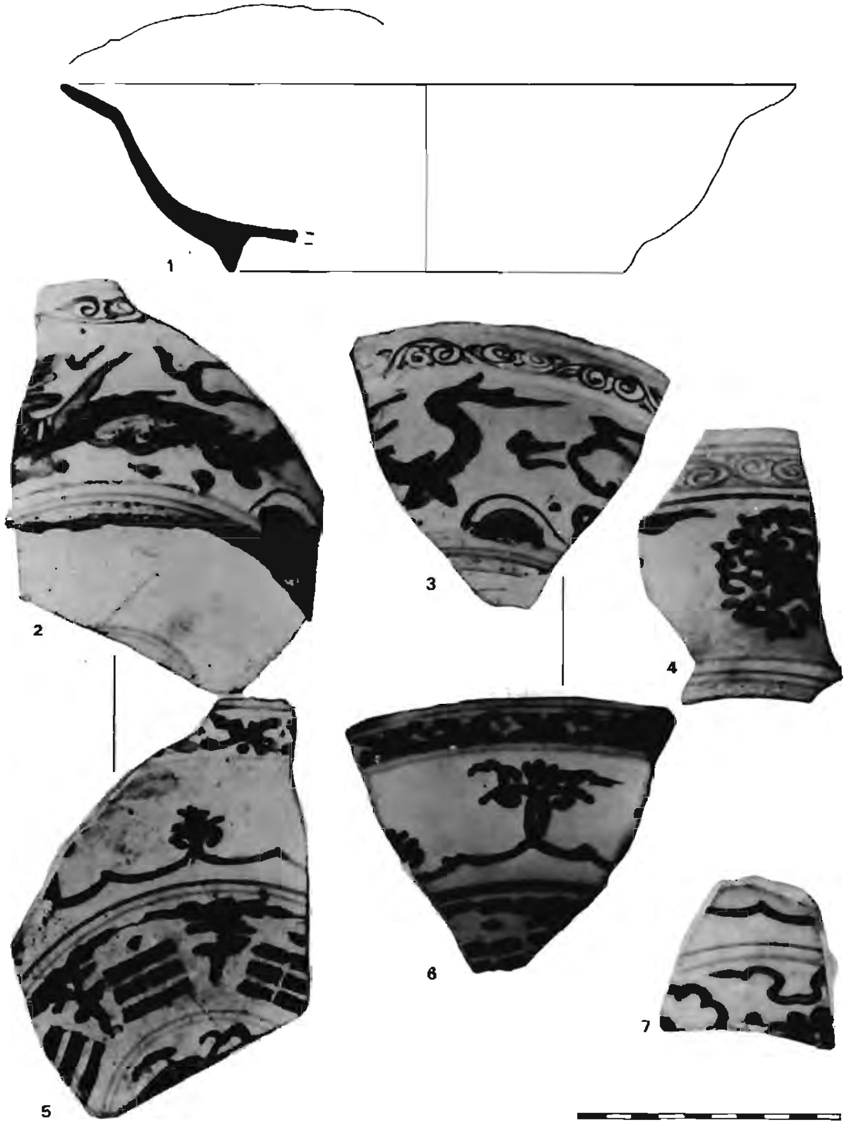


Fig. 21. Large porcelain dishes (probably for serving food). On the outsides (2 & 3) scroll border above motif or dragon, fire forms (?), rocks and waves, medallion (4) of flaming pearl (?) and dragon. Insides (5–7) have diamond diaper border, trigrams and other motifs.

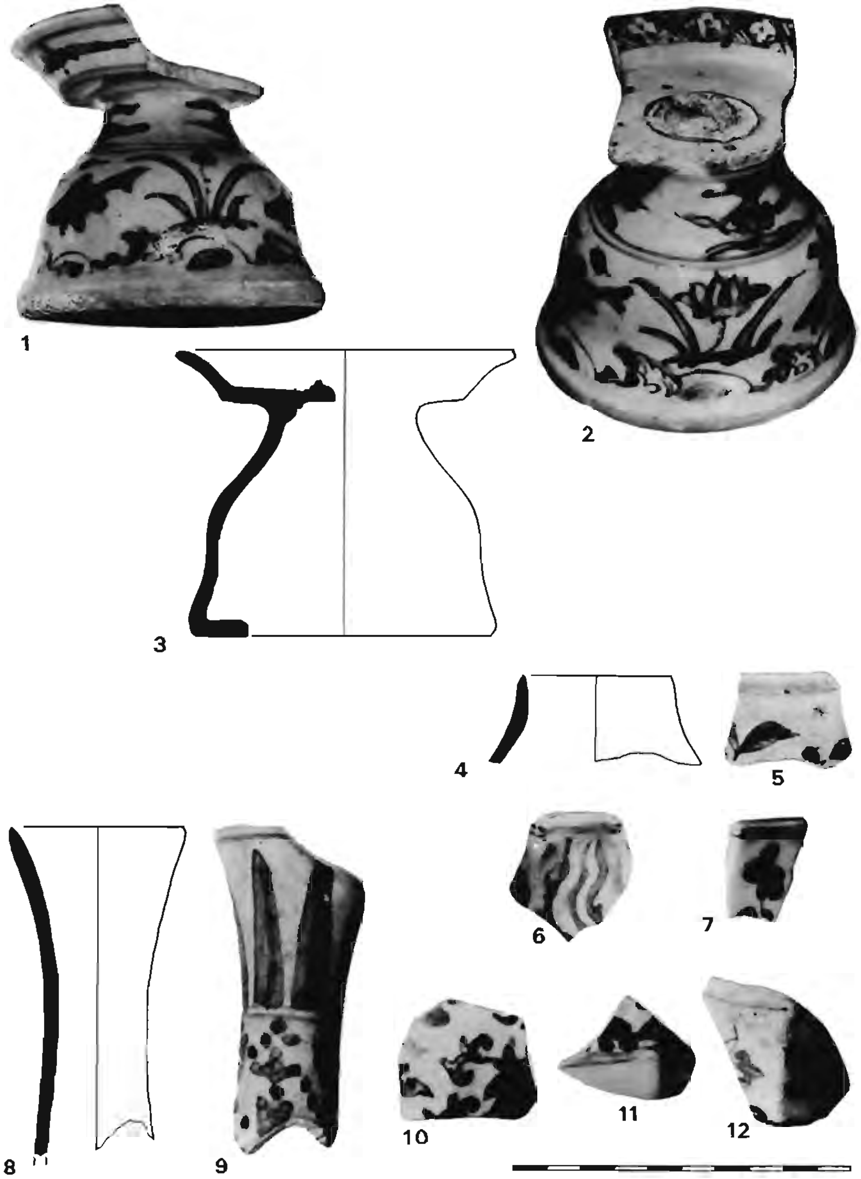


Fig. 22. 1–3. Porcelain candlestick (the candle holder broken) with diamond diaper border, fish and water plants above rocks and waves. 4–12. Fragments from variously shaped porcelain vases including hexagonal examples (6, 7, 10–12).

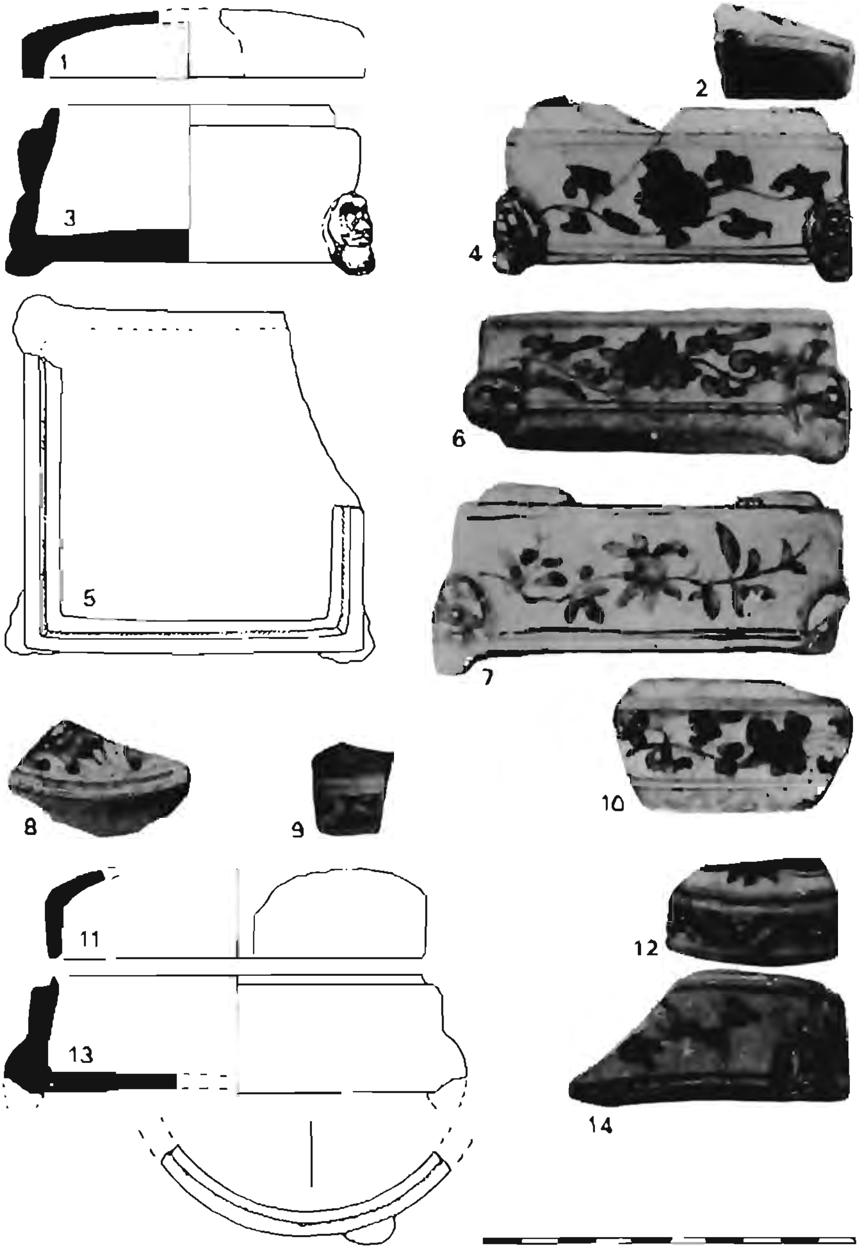


Fig 23. Porcelain boxes with lids. Lid (2) had floral scroll on side, square boxes have lotus scroll (4 & 6), or floral (7) motif on sides. Feet moulded in form of heads of lion or dog of *Fo*. Lids of circular boxes have repeating border patterns on sides (8, 9 & 12), box sides have floral motifs (10 & 14).

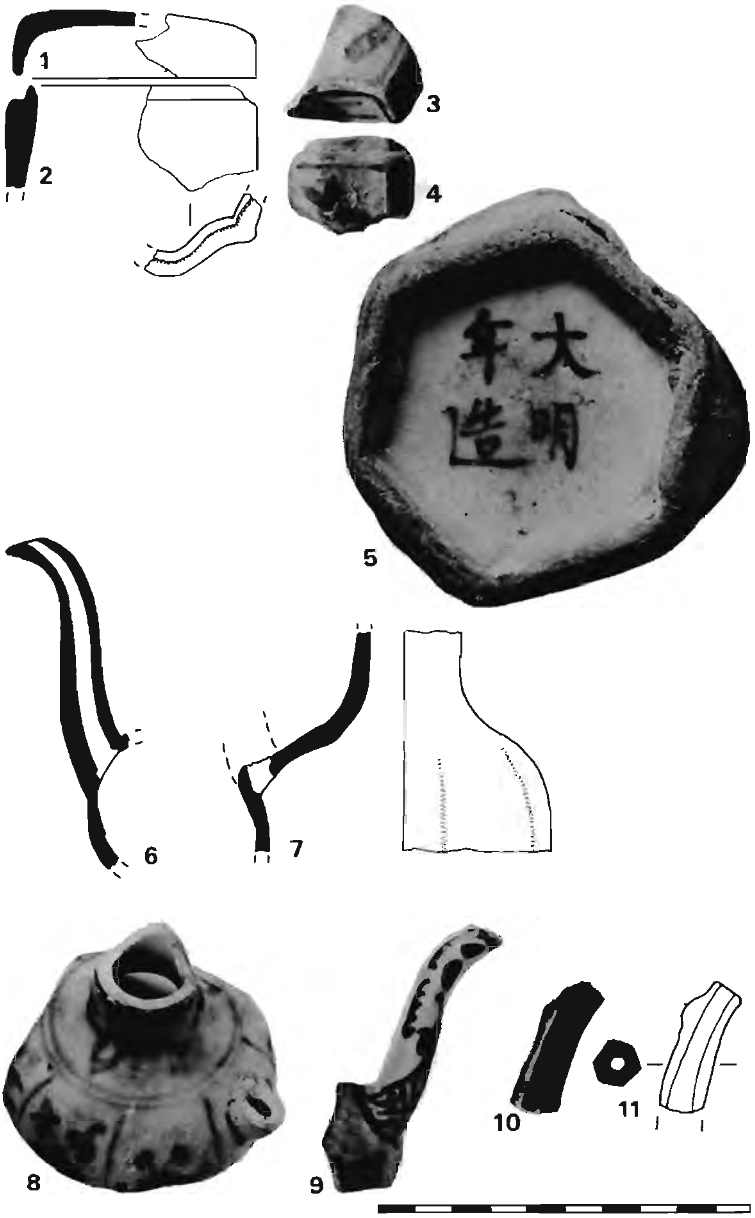
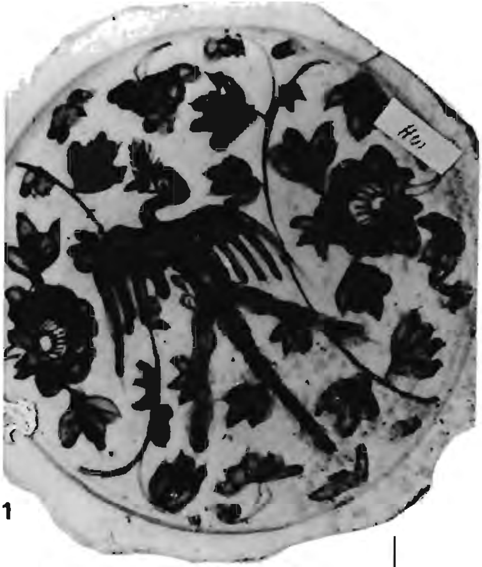


Fig. 24. 1–4. Fragments of lid and box with bracket-shaped sides, total size unknown. 5. Base of hexagonal vase with inscription 'made in the Great Ming period'. 6–9. Fragments of ewers with moulded and decorated panels (7 & 8), long curved spout (6 & 9). 10 & 11. Fragment of hexagonal spout. All are porcelain.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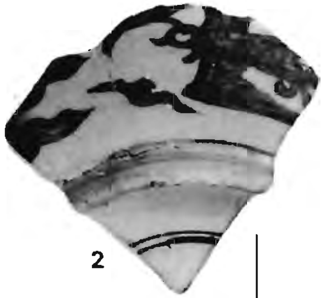
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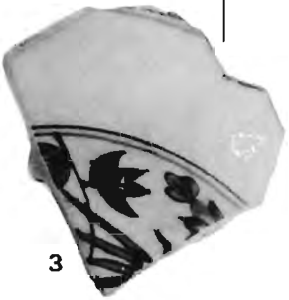
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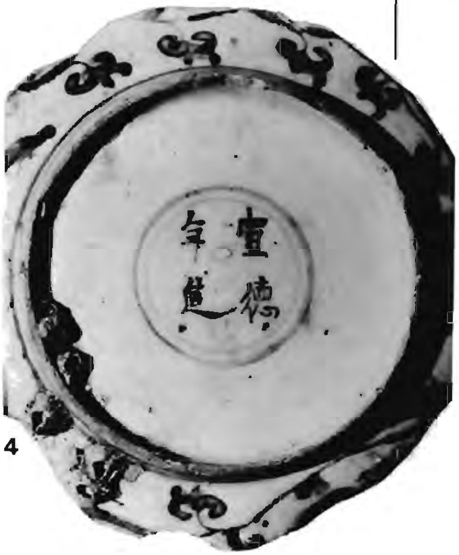

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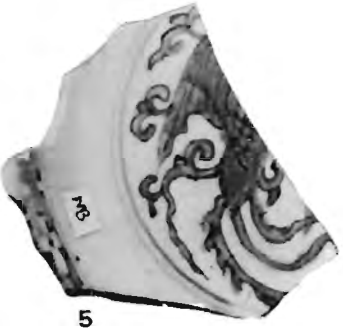
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Fig. 25. Miscellaneous decorated porcelain sherds. 1 & 4. Centre of dish with phoenix and floral scroll, inscription on foot reads 'made in the Xuande period'. 2 & 5. Phoenix. 3. Vegetation.

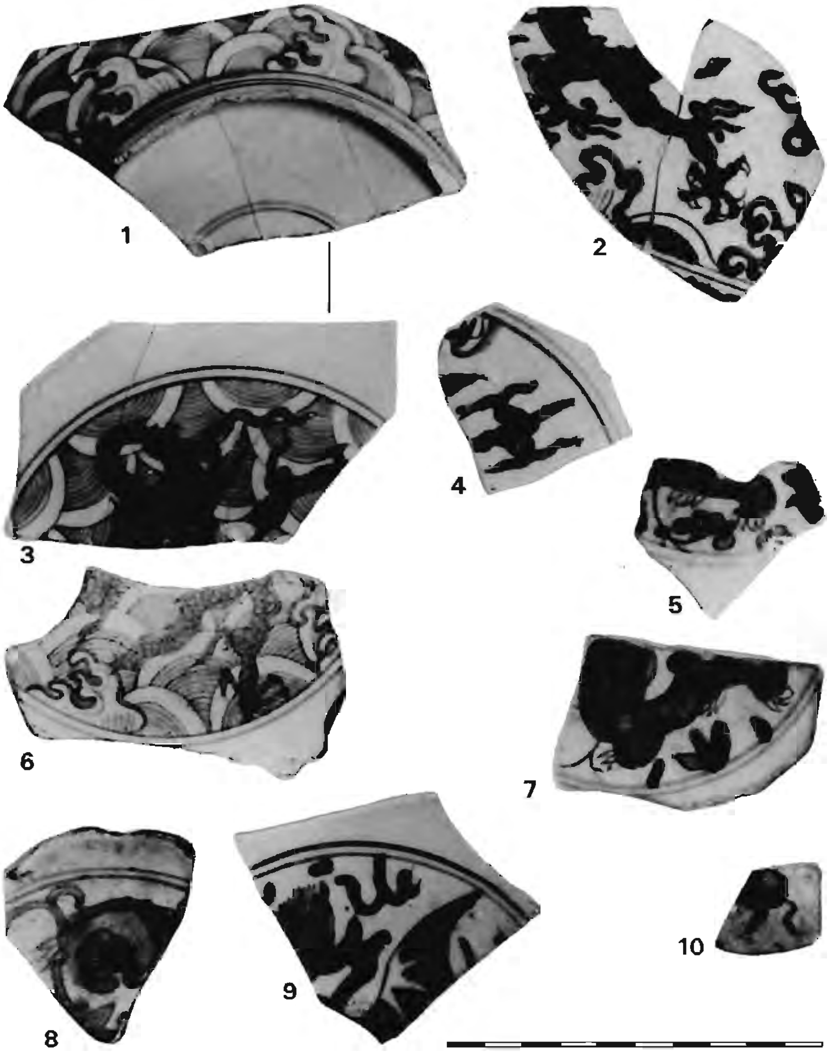

Fig. 26. Miscellaneous decorated porcelain sherds. 1–3 & 6. Wave and dragon motif. 4. Cloud. 5 & 7. Paws and claws of 'lion' (see Garner 1954 pl. 51). 10. Hindquarters of water buffalo.

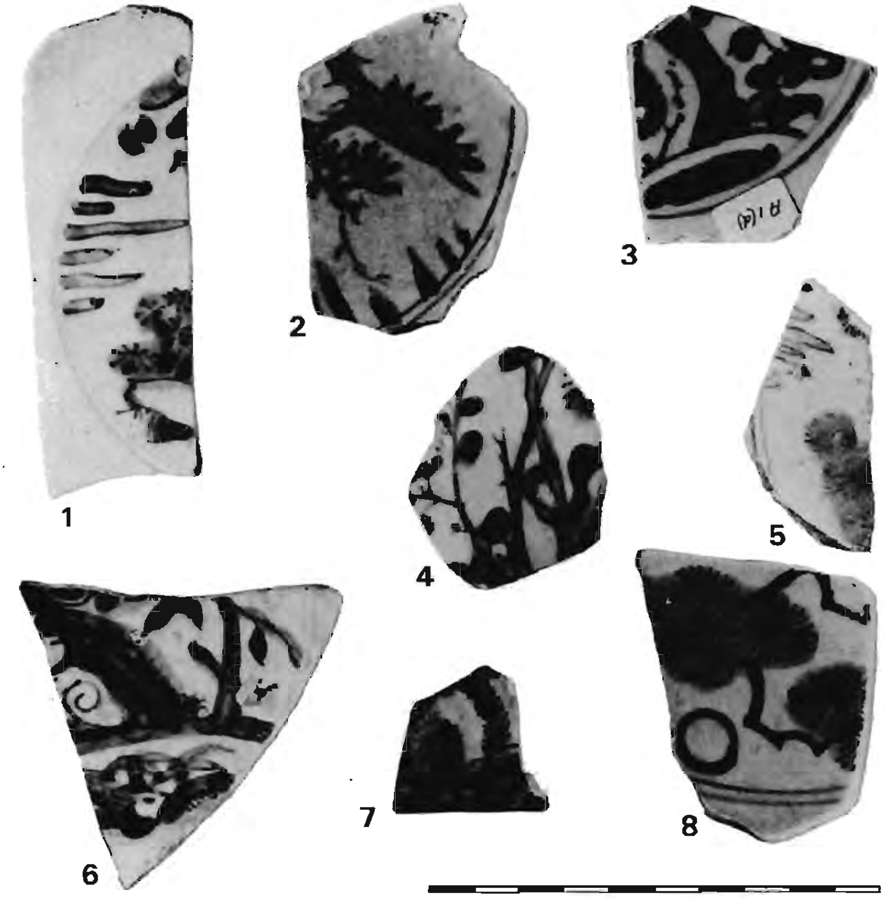

Fig. 27. Miscellaneous porcelain sherds decorated with landscape and vegetation motifs. 5 & 8 show pine tree motif.

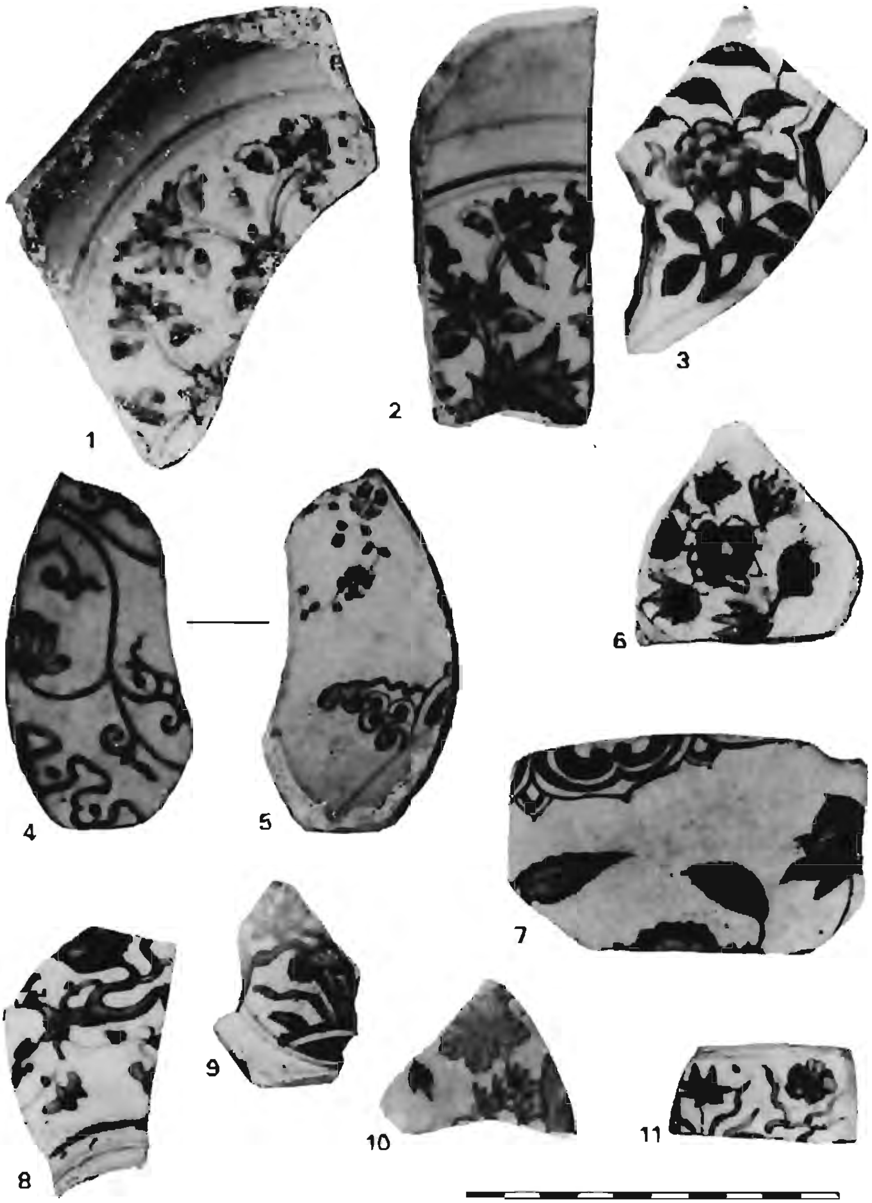

Fig. 28. Miscellaneous floral scroll motifs on porcelain sherds. 5. Rock and wave.

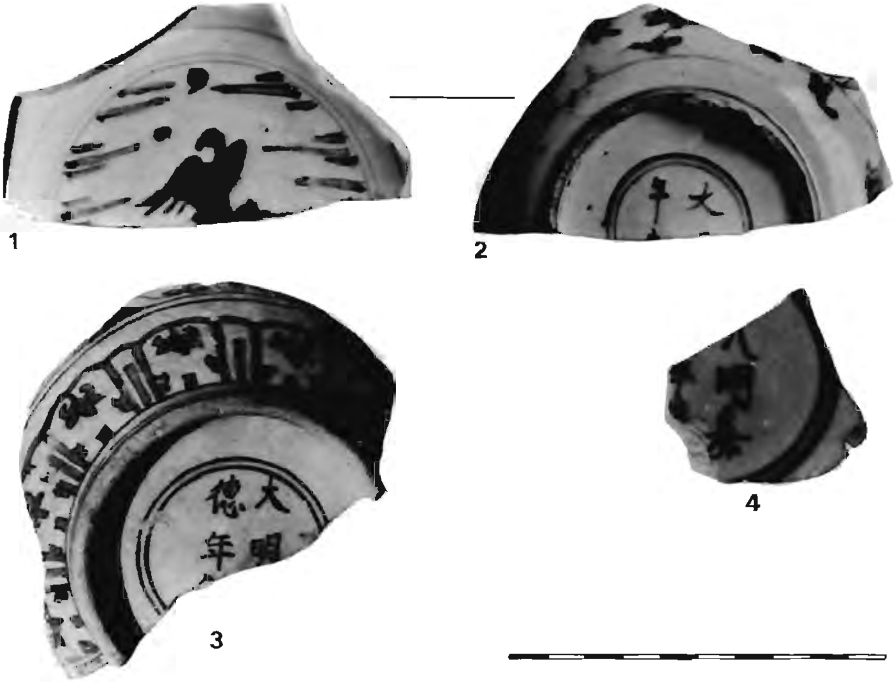

Fig. 29. 1 & 2. Eagle and cloud motif with 'Great Ming' inscription on foot. 3. Lotus panel border with Xuande or Zhengde inscription on underside of bowl. 4. Inscription reads 'made in the Great Ming Jiajing period'.

The central motifs on these dishes are different from those on the porcelain but, though too broken to be readily recognisable, they can be identified by comparison with complete examples from the Vohemar cemetery in Madagascar (Vernier & Millot 1971, plates 120–134). Most common is the mythical animal *ch'i-lin* surrounded by fire forms, the best example in the present study being Fig. 32,5, which includes (from left) the head, a fire form, part of the mane just above the break, and the fluffy tail. Other sherds show tails (Fig. 31,6 & 10) and the front foot or hoof (Fig. 31,7, 11 & 13). The other identifiable motif is that of two lions playing with ribboned balls (Fig. 33,4 & 5).

Other 'coarse porcelain' vessels include larger and smaller bowls (Fig. 33,1 & 3) but none is sufficiently complete to allow the whole shape to be reconstructed.

The earthenware

The only decorated piece of earthenware is from a large dish with an indented pattern on the rim and sgraffito decoration on the inside (Fig. 34). It has a transparent olive-green glaze over a grey-buff body (Fig. 1). It is thought to be of provincial Chinese origin but this is not certain.

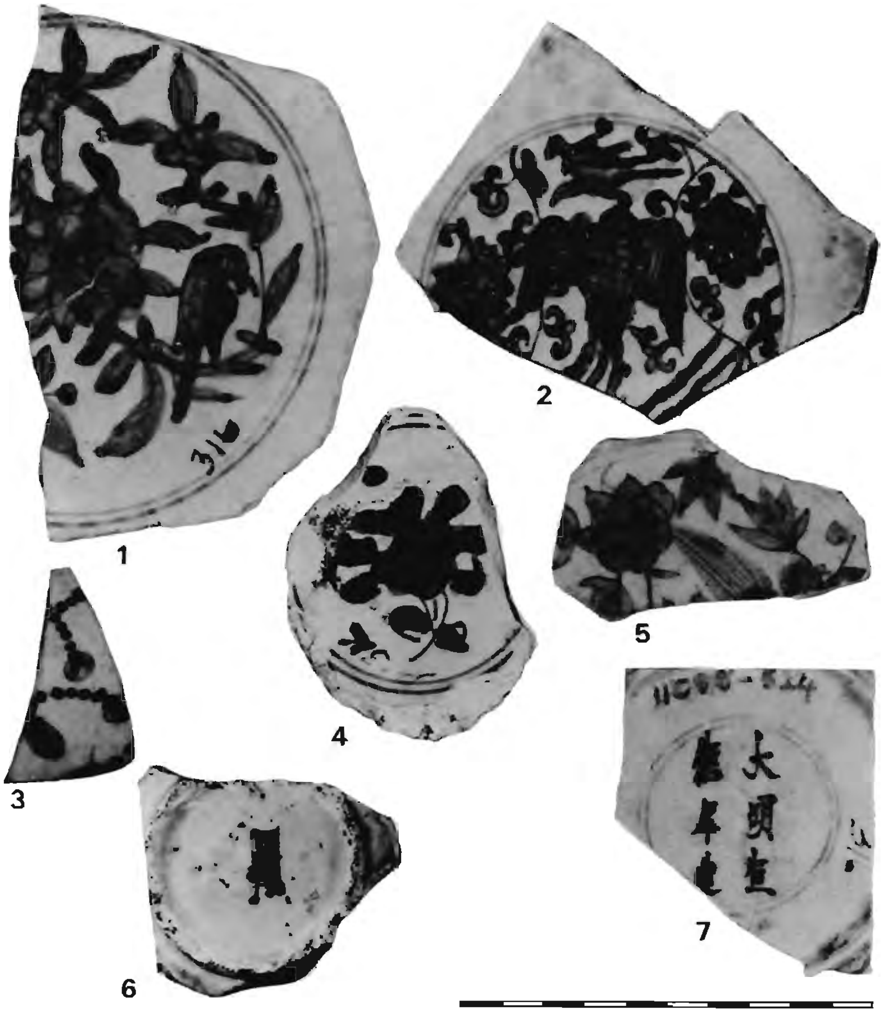

Fig. 30. Miscellaneous decorated and inscribed porcelain sherds. 1. Bird and floral motif. 2. Phoenix and floral scroll. 3. String of beads motif. 4 & 5. Flowers. 6. Inscription not identified. 7. Xuande inscription.

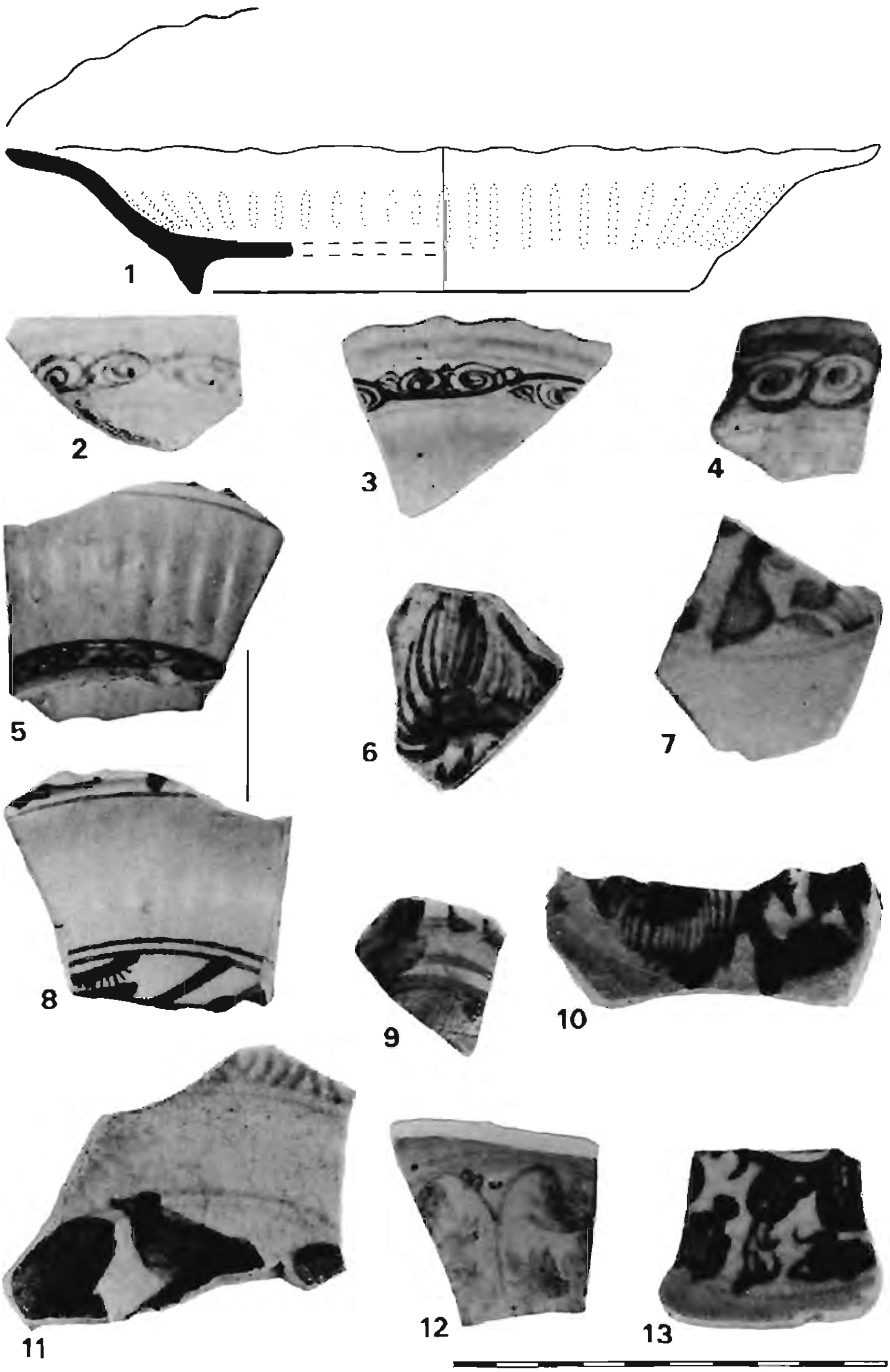

Fig. 31. 'Coarse porcelain' small fluted dishes with foliate rims. Scroll border on outside of rims (2–4) and on foot (5). 6–13. Sherds showing parts of motifs and quality of brushwork. 6, 7, 10, 11 & 13. *Ch'i-lin* motif.

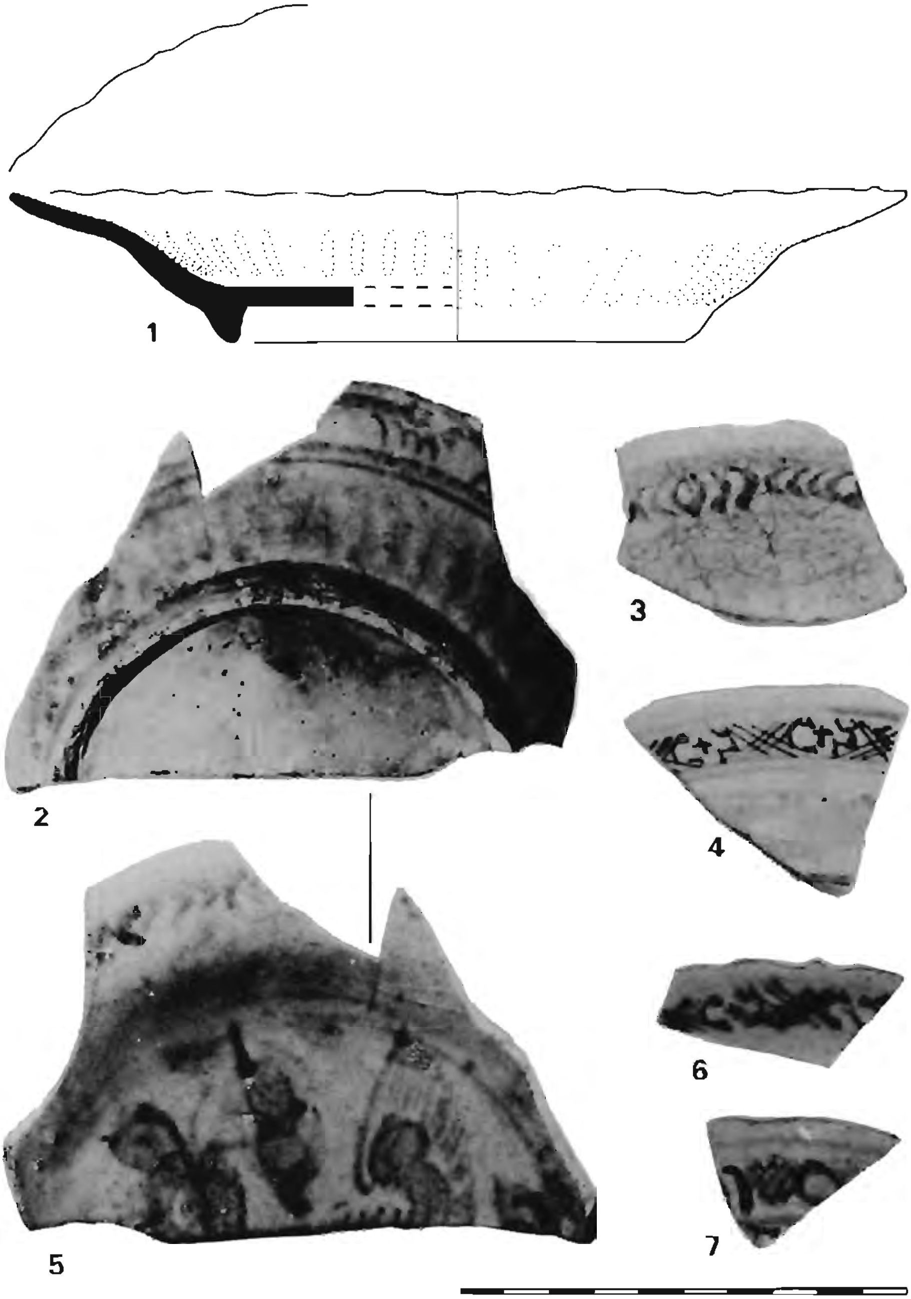

Fig. 32. 'Coarse porcelain' small fluted dishes with foliate rims. 2 & 5. Inside and outside of largest surviving piece with *Ch'i-lin* motif in centre. 3, 4, 6 & 7. Borders on inside of rims (including the diamond diaper border).

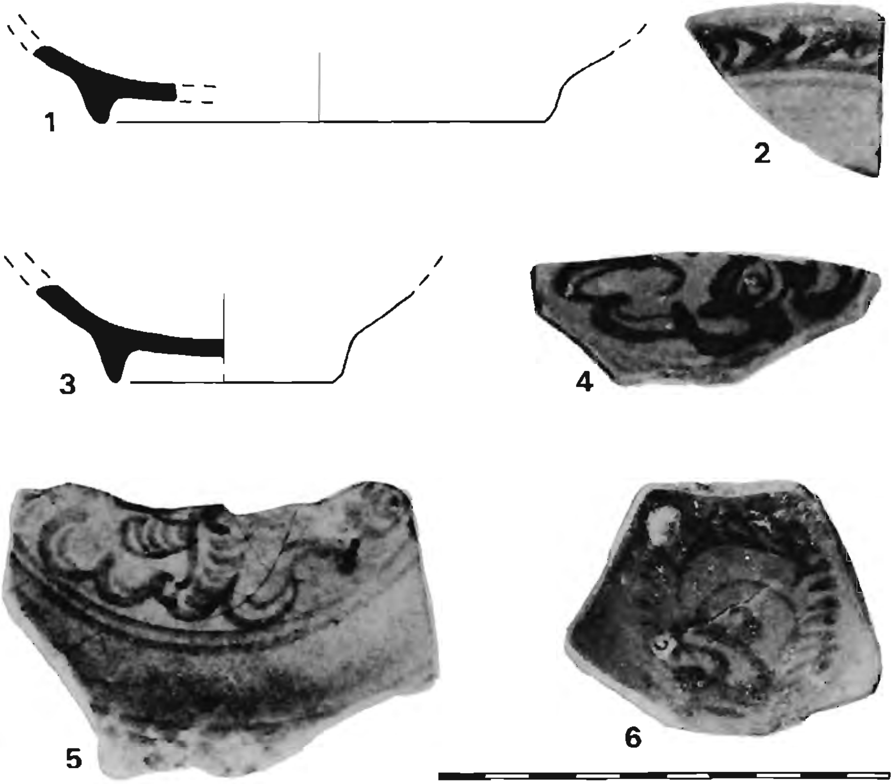

Fig. 33. 'Coarse porcelain', including feet of large (1) and small (3) bowls; decoration includes motif of two lions and ribboned balls (4 & 5).

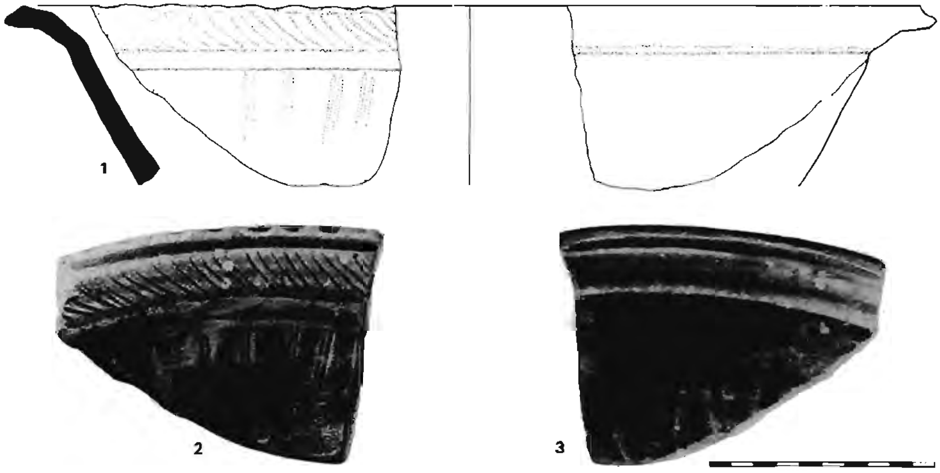

Fig. 34. Large earthenware dish with transparent green glaze, sgraffito decoration on the inside. See also Fig. 1.

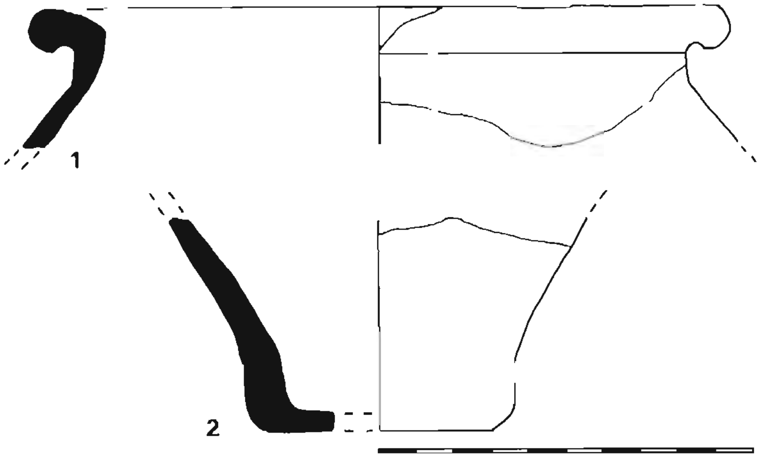

Fig. 35. Unglazed earthenware. 1. Rim of jar. 2. Narrow base.

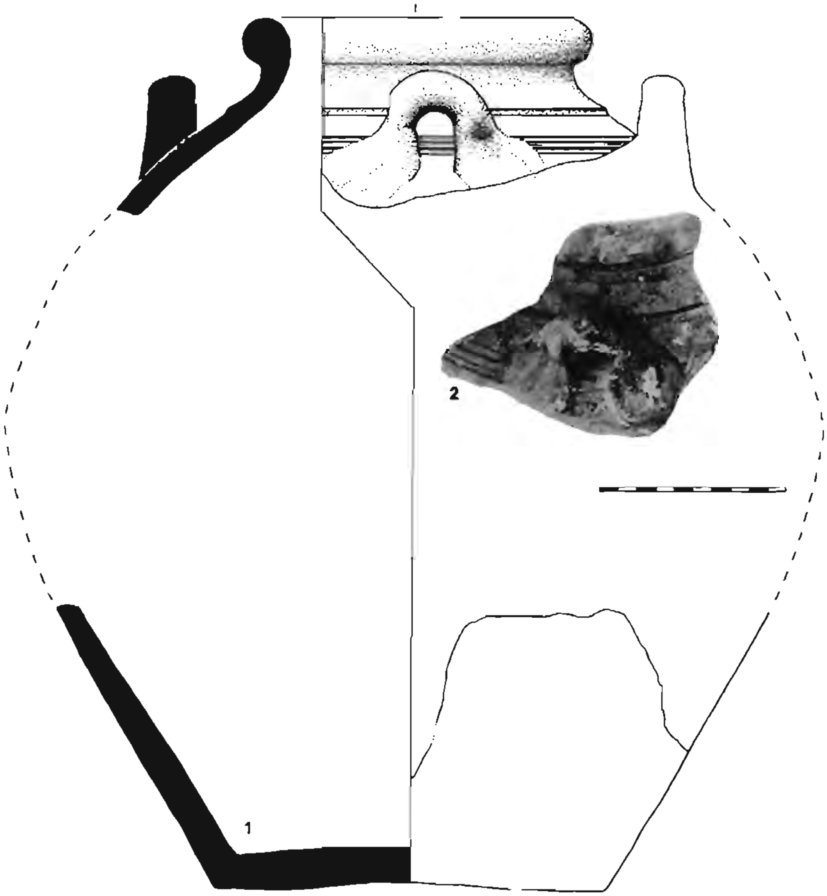

Fig. 36. Large earthenware jar with rolled rim and four strap handles. Most are unglazed but some have a dark greenish-brown glaze.

The other earthenware consists mainly of jars (Figs 35 & 36), the most common of which are large vessels with rolled rims and four strap handles. Most pieces are unglazed but some have a dark greenish-brown glaze that tends to flake away from the body with weathering (Fig. 36,2). Although their origin is uncertain, they are probably Chinese.

THE WRECK OF THE SÃO BENTO

The material remains, particulary the cannon, jewellery, coin and porcelain, firmly fix the date of the wreck at around the middle of the sixteenth century. Only two Portuguese ships are known to have been wrecked on this part of the southern African coastline during this period—the São João 1552, and the São Bento 1554. The possibility exists that it was an unrecorded ship from which no one or at least no report survived, but this is unlikely because the local topography should favour the survival of a fair number of the ship's complement when compared with the sites of several other wrecks from which there are reports, such as the Sacramento (Allen 1978) and the Nossa Senhora da Atalaya (Bell-Cross pers. comm.).

For historical information on the local shipwrecks Theal's (1898) work has been relied on. In drawing a comparison between Perestrello's report of the São Bento wreck and the geography of the Msikaba area as it is known today it was felt that it would be clearest to keep the two sources separate and examine each event step by step. It was therefore decided to use two columns which should be read concurrently. Allowances must be made for lack of precision in the survivors' account because of the extreme conditions in which they found themselves during and after the wreck. One must also remember that the habit of detached, objective, scientific observation as we know it today, was largely a development of the eighteenth-century 'Age of Reason'. The intellectual climate of the Renaissance and the early years of maritime exploration tended to be concerned with more immediate goals. Nevertheless, Perestrello's account is a remarkably lucid and concise document, most of which can now be correlated with the landscape with little difficulty.

From Perestrello's account	The modern scene
The São Bento was wrecked at 32⅓°S.	Msikaba is at 31°19'S, ie. 31⅓°, the one degree error could be typographic, for all other latitudes given are correct.
The ship struck ground less than a cross-bow shot [about 150 m] from a rocky islet. The upper decks then broke off and floated closer inshore.	The largest cannon which was probably in the hold (see above) was found about 40 m farther out than most of the other cannon (Fig. 37).
The upper decks grounded little further than a mast length [about 30 m] from the islet.	The other cannon were found close together around a reef about 40 m from the Msikaba island (Fig. 37).
The upper decks then broke apart and portions were washed ashore right on to the islet.	The great majority of finds have been made on the island (Fig. 2).

The islet was less than a 'gunshot' from a river mouth on the side nearest the Cape. [The distance of a gunshot is uncertain. About 600 m has been suggested for a 'tiro de espingarda' (Leitao & Lopes 1974), based on the statement made in 1538 by João de Castro that this was the width of Mozambique island (Cortesao & Albuquerque 1968). However, according to Axelson (pers. comm.), the average width of the island is only about 400 m, which may be closer to the mark.]	The Msikaba island is about 400 m on the Cape side of the river mouth (Fig. 2).
Survivors landed on the islet around low neap tide and then waded to the mainland to avoid being cut off as the tide began to rise. There was 1 fathom [about 2 m] depth of water separating the islet from the mainland [presumably at high tide].	The Msikaba island can be reached easily at low tide but is largely submerged and cut off at high water. There are probably no other situations on this coastline with a similar island and river-mouth configuration.
They camped in a nearby wood with a stream of fresh water.	Between the islet and the river-mouth, forest starts just above the beach, and there is a stream of fresh water used today by campers (Fig. 2).
A reconnaissance party found that for a distance of 2 leagues [about 10 km] inland the river was powerful and bordered by rocks.	The Msikaba runs in a deep, rocky gorge for more than this distance, though the lower 3–4 km are tidal and calm.
After five rainy days they set off, crossing the river on rafts.	Today the Msikaba mouth is usually passable on foot at low tide but with less silting 400 years ago, the heavy rains they experienced and perhaps following summer flooding, it could well have been unfordable.
After two days walking [many were still on crutches] they came to a second river gorge so steep and rocky that it took most of the third day to descend but they were unable to cross it here.	Some 15 km northwards from the Msikaba mouth the Mtentu forms a steep gorge 300 m deep cutting right across their route and, with the rain continuing, it would have been swollen.
Three days further northwards they came to a third river again in a gorge and too large to cross. They were some distance inland.	On a north-north-easterly course the Mtamvuna River with its steep valley would have been reached about 35 km further on.
They retraced their steps for two days. [Here the account is ambiguous; it implies a return to a village just north of the second river, but the account also states a decision to travel down the river towards the coast].	The first alternative would not allow the next stage to follow as described; however, the second alternative would fit the landscape well.
Early the next day, heading towards the sea they met the third river again, which was in a very steep and thickly bushed gorge which took two days to cross after which the sea was visible.	The Mtamvuna, from 3 km upstream of its mouth, is in a very steep and forested gorge. Unlike the other rivers, the Mtamvuna's lower course is almost due south, which would account for their meeting it again before reaching the coast.
From here they reached the shore at the very spot where the São João had been wrecked in 1552, the capstan and timber being still visible.	The Natal Museum is currently investigating another wreck site with porcelain of similar date to that from Msikaba, north of the Mtamvuna mouth. The locality of this wreck correlates broadly with the São João survivors' account and the given latitude corresponds.

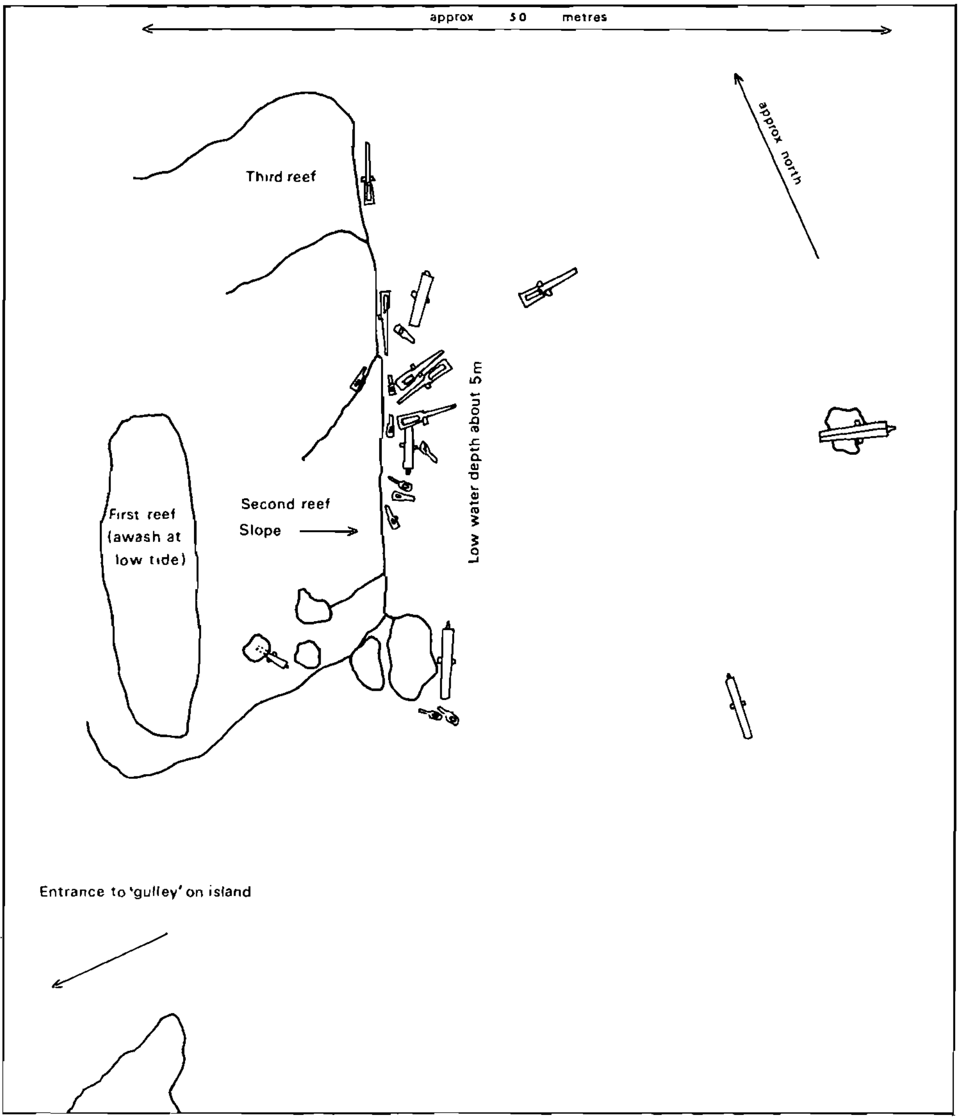

Fig. 37. Underwater sketch plan of the approximate location of the cannon (not to scale). For position of first reef see Figure 2.

From here northwards the São Bento survivors followed the coastline, the correct latitudes being given for features that can be recognised as Durban Bay, Richards Bay and St Lucia, the latter actually being named. After many hardships the survivors were eventually rescued by a Portuguese ship at Delagoa Bay.

The close parallels between Perestrello's report and the landscape of the Msikaba wreck site and the country further north leave little doubt that the São Bento foundered here. This site and that proposed for the São João, north of the Mtamvuna, are the only wrecks known to the writers that have yielded material from the mid-sixteenth century. All the others on the south-east African littoral are dated from the end of the sixteenth century or later. We conclude that both ships were wrecked further north than the locations proposed by previous authors (Wilson 1959, Derricourt 1976, Huth—no date) who relied on the historical sources alone.

ACKNOWLEDGEMENTS

In writing this article we have had to cover a variety of fields in which we have had no previous experience. We are therefore very grateful for the help of numerous specialists, especially E. Axelson, J. Ayers, H. Blackmore, O. Davies, A. N. Kennard, N. V. dos Santos, A. Somers-Cox and C. Woodward. We also wish to thank members of the original salvage group and the many people and institutions that have lent or donated material or have contributed towards the compilation of this paper, especially M. Ambler, Col. and Mrs F. B. Colvin, J. B. D. Elliot, J. D. Godlonton, R. Gold, G. N. Harris, L. E. Harris, K. Mack, A. Manning, V. Ward and Messrs SAPPI Ltd.

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